

DIRT DEMON! NEWEST MEGA MONSTER—SEE IT NOW page 78

2003
READERS' CHOICE
VOTE & WIN!

RADIO CONTROL **car action**

THE WORLD'S BEST-SELLING RC CAR MAGAZINE

Street Heat

3 HOT ROAD WARRIORS

TAMIYA Enzo Ferrari

TEAM LOSI
Triple-XS Sport

DURATRAX
Delphi Indy
RTR

**WHICH IS BEST
FOR YOU?**
15 PRO CHARGERS
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MODIFIED MOTORS
made easy!

TOUGH BRAKES

5 steps to
stronger stoppers

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ACTION!**

<MCD 1/5 Monster

OFNA
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VOLUME 18 ■ NUMBER 4 ■ APRIL 2003

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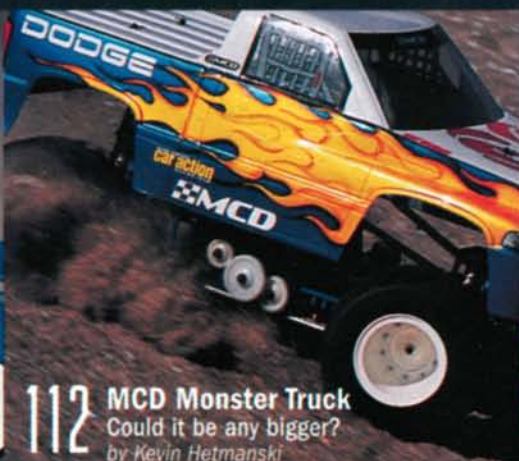
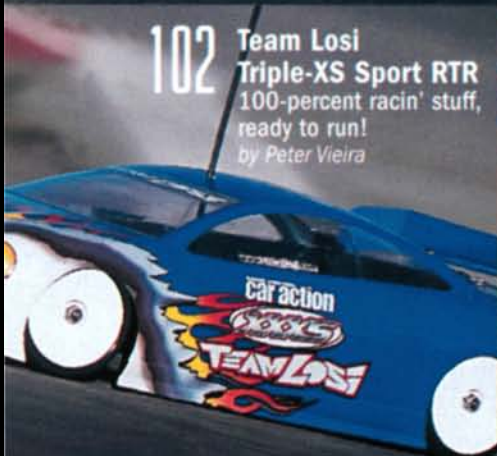
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ON THE COVER: (from top) That's not a full-size Enzo; it's Tamiya's scale-perfect TB-01 version. Meanwhile, the MCD $\frac{1}{8}$ -scale Monster Truck and OFNA Hyper 7 PBS do a little soil sampling. MCD shot by Pete Hall; OFNA and Enzo shots by Walter Sidas.



Open season for open-wheelers

Are we heading for a second coming of "open-wheel" cars? You know: F1 and Indy racers, or "pointy cars" to you NASCAR fans. DuraTrax's new Delphi IndyCar is the latest open-wheel release (see the review on page 122), and it joins Kyosho's ultra-scale Mini-Z F1 line and Tamiya's innovative 4WD F201 chassis in the vanguard of what could be RC's next trend.

Open-wheel cars have been part of the RC scene since the early days and were part of the big boom in the 1980s; many Tamiya Road Wizards probably still lurk in closets and attics—if they haven't all landed on Ebay, that is. In the late '90s, "F1 cars" (as they were universally known) were hot items; Tamiya's F-101 and F-102 chassis set the standard, and Kyosho launched its own direct-drive open-wheeler to match it. You may even remember the Impress—Kyosho's full-option version of the car. And don't forget HPI; the company's first kit was the F1, which trumped everything else with a sophisticated rear suspension, articulated front wishbones and graphite construction—a true race-car. At the time, Indy and F1 designs were the parking-lot players of choice and were the impetus behind a new parking-lot racing movement. Meanwhile, a few clubs started to bring newfangled touring cars to the events. Before long, touring became the Big Thing and F1 faded.

So why is the open-wheel scene heating up now? Well, why not? There are more ways to enjoy the cars, since you can now hold a grand prix in your living room with the Mini-Z, and it's easier than ever to get behind the wheel because the DuraTrax Delphi and Kyosho Mini-Zs are ready to run. And it doesn't hurt that the Mini-Zs double as display-quality static models; the bonus of actually being able to drive them has to be tough for any die-cast car collector to resist. In the case of Tamiya's F201 (which also looks like a display piece when it's complete), F1 fans get authentic inboard, independent suspension for realistic handling. Full-time 4WD is a big help in the handling department as well; sure, no full-size F1 car has 4WD, but it sure makes the F201 a lot easier to drive than the skittish rear-wheel-drivers of old.

Will open-wheelers really take off? That's up to you. But I know what my next car will be!

IN THIS ISSUE

Kiss your crystals goodbye. Hitec was the first to release a frequency-synthesizing pistol radio (the Lynx 3D with Spectra module), and Novak was the first with a synthesizing receiver (the XXtra, which you can also purchase with the Lynx 3D), but only JR Racing's XS3 is the first with a same-brand transmitter and receiver frequency-synthesizing system. And it's affordable! We have the complete review on page 176.

More monsters. Only Toho has more monsters than the RC scene. Hot Bodies will be the latest to join the fray with its soon-to-be-released Dirt Demon. It's shaping up to be the biggest of the big-block nitro monster trucks, and you'll be one of the first to see it when you flip to page 78.

Join the mod squad. Winds, turns, comms—oh my! If you're ready to install a modified motor for more speed and power but you need help sorting out the features and jargon, we're here for you. What better way is there to understand mod motors than by reading an article called "Understanding Modified Motors"? It starts on page 182.

Charge it. So, you're taking the plunge and upgrading to a racing-caliber charger. Lots of choices, lots of features; how do you pick? We show 15 *current* models (forgive the pun) and give all their specs to help you decide which charger to add to your pit box; turn to page 132.

Peter Vieira
Executive Editor

VOTE AND WIN!

It's "Readers' Choice Awards" time again! You'll find your official ballot on page 243. This is your chance to vote for your favorite cars, trucks and gear, and you'd better believe that RC manufacturers take notice when you tell them what you want—by voting! Wait; it gets better. Your ballot is also a contest entry! If we select it in a random drawing, you'll be given the chance to pick any Readers' Choice winning vehicle as your prize! You can vote by mail, fax, or online at rccaraction.com. Details are on the ballot!

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RC9800



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RC9700



TOURING TIRE HAULER



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READERS WRITE

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CANADA LOVE

When people who don't know the hobby say that an RC car is just a novelty, if you show them something like a T-Maxx, they change their minds completely. A while ago, one of my buds came over to hang out, and I asked him whether he wanted to see my T-Maxx; he said, "Sure."

He now runs an HPI RS4 MT and has a blast with it. I've introduced about six or seven people to the hobby, so we held a race at my old school. People who were amazed at my old Associated RC10 Dual Sport now hold races every few months.

I don't believe that RTR and aluminum parts are ruining the hobby. I think people spend money on trick parts because they have some kind of spiritual bond with their rides, and that RTR is for the average joe who has only a little free time and just wants to burn around. Many who are new to RC probably decide on an RTR because they may not be the best at building. If they eventually learn how to tune properly, they might buy a kit, and that means more competition! [email]

Your Canadian buddy
Tyler Petersen

I like your drive-and-let-drive attitude and your "spiritual-bond" theory, Tyler! Consider me your American buddy.

—Pete

BALLISTIC ON A BUDGET

I'm thinking about buying a Corally C10X for road bashing. Are there other on-road car kits that cost \$100 to \$150? Could I use a 190mm Pro-Line Honda Civic coupe body? Which motor will be fast but won't blow my Explorer II and would give me at least five minutes of run time with a 6-cell Sanyo 1700?

Phil Opalka
S. Holland, Illinois

In addition to the Corally, you should also check out Associated's RC10L3 Touring; it costs about \$110 in the fiberglass "Sport" version and \$160 in graphite "Team" trim (see the June 1999 issue for a review).

SpeedMerchant's Speed Spec and CRC's Pantoura also deserve a look (check 'em out at teamspeedmerchant.com and teamcrc.com). If you want a totally low-buck ride, look into a Bolink Touring Chassis (reviewed in September 2001); it will only set you back about \$60. The Associated and Bolink cars take 190mm bodies, and any direct-drive touring car will be ballistic with a 15-turn motor (that's the lowest wind the Explorer II can officially handle). And you'll still get five minutes of run time, as long as you don't overgear the car.

—Pete



EVADER UPGRADER

I just bought the new DuraTrax Evader BX, and I read that Losi rear tires will fit it. Is this true? Which other wheels could I use? Would any 2.2-inch rim fit? Other than DuraTrax, do any companies make aftermarket parts for it? [email]

Mike White

Any 2.2-inch buggy tire will fit the Evader BX, and it accepts rear rims designed for the Team Losi Double-X and Triple-X series (likewise, the Evader ST is compatible with rims designed for Losi trucks). I don't know of any hop-ups for the Evader BX by companies other than DuraTrax, with the exception of "generic" items such as Lunsford titanium ball ends and turnbuckles, RPM ball cups, anodized hardware sets, etc. The Evader BX could also wear shocks from other manufacturers, but its stock aluminum shocks are already quite good.

—Pete

NO BONDO NEEDED FOR BUGGY BODY

I have an OFNA 9.5 Pro buggy that I absolutely love. I want a new body for it, but I don't want a stock one; I'd like a flashier one for show and shine. I'm considering Pro-Line's Crowd-Pleazer 7.5 and Trinity's WASP, both of which are made to fit the Kyosho MP7.5. Will these (and any other bodies for the Kyosho MP7.5) fit an OFNA 9.5?

Adam Loomis
Locke, NY

Any Inferno body can be made to fit your 9.5, but the trim lines for the shock towers will be off. Eyeball the shock-tower positions as well as you can, trim a little at a time and test-fit the body on the chassis frequently. The engine and fuel tank openings may have to be scooped around, too; mark their locations before you paint the body.

—Pete

TELL MOM

When I read the January issue, it re-sparked my interest in my electric Rustler. But I'm also ready for something new, so I thought I'd look into nitro. My ever-present parents stopped me, though; my mom thinks that nitro fuel is too dangerous and that I'll blow myself to the next continent! Can you give me some info about the safety of nitro fuel and cars? [email]

Kyle Almlie

MOTOR Cooling Stand



Black billet aluminum motor stand/heatsink with cooling fan. Designed to quickly and safely cool down your stock or modified motor between runs. No more trying to work on a **HOT** motor in order to make the next heat. Fan can be run off a 6 volt battery or power supply.
RC2085, \$29.99

BATTERY Cooling Stand



Foam car stand and battery cooler with oversized fan. Cools two stick or side by side packs at one time. Lets you get your packs back on charge quicker
RC5112, \$15.99



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The fuel used in nitro-powered cars is very, very safe compared with gasoline, even though "nitro" sounds far more volatile (most people think "nitroglycerine" when they hear "nitro"). You can safely store nitro fuel indoors (sealed in its supplied container, of course), and its fumes aren't as noxious as those of gasoline. As long as you keep it away from kids and pets that might be tempted to drink it, and you're smart enough not to do something stupid—like pour out the fuel and ignite it (myth buster: nitro fuel can be lit with a match!)—you'll have no safety worries.

—Pete

LETTER MAN

I've been reading *RC Car Action* for several years. It's a great mag, and I often use it as a reference. I hope that you can come through for me on this question. I've seen several cars with white-letter tires and would like to find the source of them. I think that they might be decaled or be custom tires because I can't find a dealer who carries them.

Clarence Curry
Williamsburg, VA

I've seen decals for tire lettering included with kits (mostly Tamiya, HPI and Kyosho), and they look great when applied to smooth sidewalls. If your tires have raised, molded-in letters, you can paint them with an enamel paint marker.

—Pete

PYLON PART NUMBERS

After reading "Maxx Body Guide" in the March issue, I just have to have a Protoform wing for my truck. I didn't have any trouble finding the wings on the Tower Hobbies website, but I can't find the standoffs you showed in the picture; what's their part number? [email]
Steve Ready

Unfortunately, Protoform doesn't sell the aero wing supports separately; to get them, you'll have to buy a Pro-Line FX or a Protoform Opel Astra body (both available in 190mm and 200mm versions). Maybe the wing supports will be available separately in the future or packaged with the Protoform wings. I'd gladly pay a little extra! Meanwhile, try using short pieces of aluminum tube as standoffs, as explained in the April 2002 edition of "Body Shop."

—Pete

YOU SAID IT

"... I would like to see some freestyle projects ..."

Remember the guy who wrote in to say he wanted to see projects like the vehicles on Monster Garage? Well that's not quite what I would like to see, but I would like to see some freestyle projects. Projects where you make your own skidplate or arms, that type of thing. Anyone can slap on a pair of arms from a different company (I'm not saying there's anything wrong with that). It would be cool to see some stuff that you don't see every day: special projects like micro monsters or 4WD buggies that were once touring cars and stuff like that. It's neat to see what people can come up with. Being 15 and not having too much money, I try to make what I have original so it looks different from the average guy I race and bash with. I really liked the originality of the guy who made the Reader's Ride of the Year Tamiya Alfa so unique. [email]
Austin Thomas

You're in luck, Austin; Kevin Hetmanski (you know, our "4x4" guy) is building a micro monster for our upcoming "Monster Trucks" special issue. I have some very different projects I hope to find time to build in this century, as do the other editors. What we'd really like to see are more readers' projects; I'd love to do more "Homebuilt" articles. What are you guys working on out there, besides loaded Maxx trucks and Clods?
—Pete



Each month, "Readers Write" sponsor Team Trinity awards the "You said it" letter writer the Reference body of his choice. This is Trinity's new shell for the Associated RC10GT.

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

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inside scoop

THE LATEST STUFF • SPY SHOTS • INSIDER INFO

BY PETER VIEIRA

ASSOCIATED

RC10B4 Stealth buggy

The A-Team will pin its hopes for yet another IFMAR 2WD Off-Road victory on the long-anticipated car you see here. We first scooped the B4 as part of the December 2002 issue's "Hot New Now" section, and we chose it as one of our "must-haves" in the January 2003 issue's "Lust List." This is the B4's first appearance with its body (looks killer!), and the car is just about production ready, so keep an eye on those UPS drop-offs at the hobby shop!

You can discuss the new B4 and check out more pictures at rcraction.com. In the meantime, here are some of its most important new features:

- New 2.6:1 Stealth transmission with double-sided slipper clutch and high-torque RC10GT differential.
- Super-low-CG chassis.
- Max-legal-width rear suspension with longer MIP CVDs.
- All new suspension geometry with arms of equal length, captured hinge pins and inline or trailing-axle options.

Team Associated (714) 850-9342; teamassociated.com; rc10.com.



World Champ?

Hot Rocks

TRINITY

New Winds for Trinity Speed Gems Pro

The winds are new, but the Speed Gem Pro features are unchanged; you get P-94 "big brushes," three installed surface-mount capacitors, a D4 can and endbell with adjustable timing, and the armature spins on ball bearings. Next time you're rock-hunting at the hobby shop, you can pick up a Speed Gems Pro Pyrite (10 double), Nitronite (12 double), Serpentine (14 double), Chromium (16 double), or Arcornite (19-turn spec single built to ARCOR specs).

Trinity Products Inc. (732) 635-1600; teamtrinity.com.



PROTOFORM

190mm Infiniti G35

I'm just going to say that the new G35 shell includes overspray film, window masks, detailed decals, wing and hardware. I figure the less text I put in, the more room there will be for a bigger picture. This thing is gorgeous!

Protoform Inc.; distributed by Pro-Line (909) 849-9781; pro-lineracing.com.

Gee-whiz G35



hit the Dirt!

MRC/ACADEMY RT-4 GP

We haven't seen a new truck from MRC in quite a while, but the Academy-built RT-4 GP looks as if it was worth the wait. The shaft-driven 4WD stadium-style truck is built on a 3mm aluminum chassis and rolls on a full set of ball bearings. Futaba radio gear makes the RT-4 ready to run, but good luck spotting the steering servo, receiver and battery; they're out of harm's way under plastic hatches. Even the on/off switch gets a snap-shut lid! Academy's RT .15 with slide carb and tuned pipe provides the power, and a one-color factory-painted body finishes the truck.

Academy; distributed by MRC (732) 225-2100; moderec.com; academyhobby.com.

gold knuckles

PRO-LINE Knuckles buggy tires

Pro-Line debuted the new Knuckles treads at the 1/8-Scale Off-Road Worlds in Punta del Este, Uruguay, where the tires helped earn Mark Pavidis a first-place gold (pretty good endorsement, don't you think?). The Knuckles were specifically designed for blue-groove, hard-packed tracks, and they won't shed tread during an hour-long Main; according to Pro-Line, the team's tires still had 50 percent of their tread after 60 minutes of racing while other tires looked like "before" shots from a "Hair Club For Men" commercial.

Pro-Line
(909) 849-9781;
pro-lineracing.com.



NON-TURBO, fits all .12, .15, .18, .21 engines made by Nova Rossi, Rossi, Picco, Sirio etc. that use a standard non-turbo plug
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TURBO, fits all .12, .15, .18, .21 engines made by Nova Rossi, Rossi, Picco, Sirio etc. that use a turbo plug.
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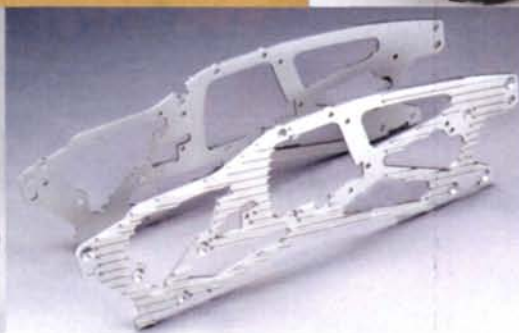
WILDER SAVAGE

HOT BODIES Upgrades for HPI Savage 21

Hot Bodies seems to be getting Savage parts out through its doors even faster than HPI is! Highlights

include new chassis plates in carbon fiber and finned aluminum varieties, finned engine mounts, three styles of chrome wheels and super-size Massive Truck wheels and tires. The mondo meats are more than 6 inches in diameter and 4 inches wide, and they'll be offered separately as well as in glued-up sets (production wheels will be chrome; these white pieces are protos). The huge tires will be a good match for Hot Bodies' extended chassis kit, which adds 1 inch to the Savage's wheelbase (shown here with the company's new aluminum shocks). Look for all the parts to hit dealers' shelves soon.

Hot Bodies (909) 296-9340; hotbodiesonline.net.



TRINITY

TOURING CAR RUBBER & FOAM TIRE WARMERS

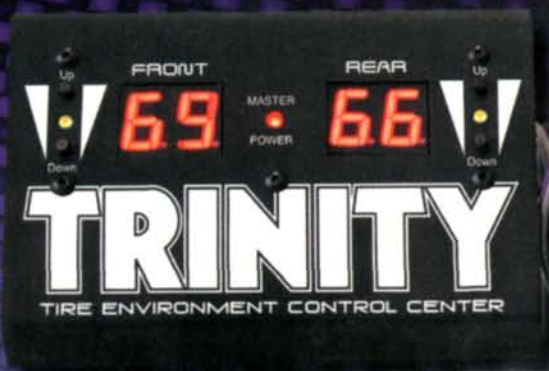
Adjusts front and rear tire temperatures separately or left and right for oval racing

Temperature range from 01°C to 98°C, (33°F to 208°F)

Fits a maximum tire diameter of 65mm, (2.559")

Works with rubber or foam tires

Power with a 8 or 10 cell battery pack or a 12v power supply.



RC6078

DIGITAL HEAT

Super Tire Warmers

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Kinwald Case

TEAM KINWALD Limited Edition World Champion Radio Bag

Trinity will make only 500 of these signature-series bags, and each has its own serial number for extra specialness. But even without the Kinwald factor, it's a mighty fine transmitter bag. Heavy-duty padded construction, extra pockets for crystals and modules and a hang tag for your name and address are standard features. Get yours today; it will be the perfect addition to that scary shrine to Kinwald you've been building in your tree house.

Team Kinwald; distributed by Trinity Products Inc.
(732) 635-1600; teamtrinity.com.

ACER RACING

Dual Super Polyamide bearings

Light can reach the balls in these bearings, but according to Acer, nothing else will; the polyamide seal is the ultimate defense against dirt, yet it allows the bearings to roll with less friction than a Teflon seal does. Individual bearings and complete sets will be available (this bunch is for the Traxxas T-Maxx), and Acer plans to add this new "seal" technology to the ultra-slick Ceramic Nitride Pro bearing line. Acer Racing (310) 472-8090; acerracing.com.

POLY WANNA BEARING?



ACER RACER



ACER RACING AR-8

What's this? Acer Racing is now in the buggy wars? With Andy Smolnick (fresh from Team Kyosho) at the controls? Well awright! Andy is wrenching on Acer's new AR-8 Pro; it features a lightweight design, hardened-steel, bevel-gear diffs with spiral-cut ring and pinion gears, and standard-issue titanium turnbuckles. Acer also promises hard-anodized, threaded-body shocks and a complete set of ceramic-nitride bearings (of course, you saw the bearings coming a mile away, right?)

Acer Racing (310) 472-8090;
acerracing.com.



pint-size pajeros

KYOSHO Mini-Z Overland

You can expect these pocket-size rock-climbers to be big hits! Kyosho is the first to bring minicars to the off-road world with the new Overland series. The 2WD truck chassis has long-travel front suspension and rear trailing-arm suspension, and the wheelbase is adjustable; the Mitsubishi Pajeros in Paris-Dakar paint jobs use the "shortest" chassis setting. Like all Mini-Zs, the new off-roaders are completely ready to run with Kyosho Perfex radio systems, painted and decal bodies and integrated on-board electronics. Kyosho; distributed by Great Planes Model Distributors (800) 682-8948; kyosho.com.

Turbocharged!

COMPETITION ELECTRONICS Turbo 35 GFX

The Competition Electronics guys claim that the GFX is the most advanced charger/discharger available, and with their history, we don't doubt it! The new unit can show charge and discharge curves for packs and individual cells, and it can do so while it's charging and when it has finished the charge cycle. More info is displayed on the screens, so there are fewer menus to scroll through, and the backlit LCD makes it easy to see what's up with your packs as a race day turns into a race evening. The discharger function is a work-horse (0.5 to 35 amps!); the GFX can also run in motors at up to 20 amps, and the charge amp rate can be adjusted while it's charging. Favorite feature? The low-tech-meets-high-tech rotary dial that makes it easy to change values and select functions.

Competition Electronics (815) 874-8001; competitionelectronics.com.



The Art of Racing!

Get the most from your HPI RTR-3

Not only does this stuff make your car look cool, it makes it perform better too! And looking cool and performing well is half the race!



CORNER DOTS
STD. 60311
MICRO 60312



ALUMINUM BRAKE LEVER SET
61133



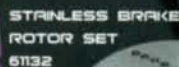
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61137



ALUMINUM EXHAUST
WIRE MOUNT
61112



ALUMINUM ENGINE
HEAT SINK (12 FINS)
61114



STAINLESS BRAKE
ROTOR SET
61132

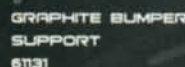


STAINLESS VENTED
BRAKE ROTOR SET
61135



ALUMINUM BODY
MOUNT SET

- 60104 50MM
- 60105 55MM
- 60106 60MM
- 60107 65MM



GRAPHITE BUMPER
SUPPORT
61131



ALUMINUM CENTER
BULKHEAD SET
61130

HEADS UP!

GOLDEN HORIZONS

Heat-sink Heads

Here's an easy way to set your HPI Savage 21 or Traxxas T-Maxx apart from the others guys': a machined GH heat-sink head. Black and silver versions are available with removable purple or blue caps. They're direct replacements for the stock parts and are perfectly finished—really classy stuff.

Golden Horizons Enterprises Co. Ltd. (604) 331-2526; ghhobby.com.



Toasty Tires

TRINITY Digital Heat Touring Tire Warmers

Don't waste the critical first laps of your next race by leaving the line with cold tires! Trinity's new tire warmers can give your car warm, gooey gumballs right from the starting tone—an instant advantage. But these warmers aren't merely mini electric blankets; Trinity's "Digital Heat" technology lets you warm the front and rear tires independently, and there are dual digital displays so you can see just how warm the buns are getting. Pretty trick, eh? You'll need 12 volts to power the warmers, which max out at 208 degrees Fahrenheit. You can make coffee with these things!

Trinity Products Inc. (732) 635-1600; teamtrinity.com. ■



ALUMINUM REAR KNUCLE ARM SET
61103

ALUMINUM REAR ARM SET
61110

ALUMINUM STEERING SET
(BALL BEARINGS NOT INCLUDED)
61105

ALUMINUM FRONT ARM SET
61109

ALUMINUM FRONT KNUCLE ARM SET
61104

ALUMINUM FRONT LOWER ARM MOUNT
61115

GRAPHITE REAR SHOCK TOWER
61136

GRAPHITE FRONT SHOCK TOWER
61134

UNIVERSAL SHAFTS (FRONT) 50MM
61108

HOT BODIES

www.hotbodiesonline.net
27469 Colt Court, Temecula, CA 92590
Tel 909 296 9340 Fax 909 296 9343

readers' rides

YOUR BEST BUILDS

DARREN OH
SINGAPORE

TAMIYA WILD WILLY

Darren dropped Pro-Line's HPI Micro RS4 Dodge body onto his Tamiya Wild Willy to make a realistic-looking monster truck, and he added a Kawada 12-turn motor and LRP ESC for plentiful power.

To prevent the rig from flipping over because of the extra horsepower, Darren mounted the wheelie bar upside-down.



JOHN L. DIMA
KEW GARDENS, NY
HPI NITRO RS4 RACER

This sharp-looking Mustang body sits on a fully decked out HPI Nitro Racer chassis. John spent around \$1,500 to customize this ride. The Mustang has a Phantom .15 racing engine, 2-speed tranny, MIP header and pipe, Lunsford links and Robinson Racing gears and pulleys.

BLAKE JINES-STOREY
WESTERVILLE, OH
HPI MICRO RS4

Blake's well-detailed Ferrari 360 Modena body covers an HPI Micro RS4 equipped with a Ratzas Rat Racer Xtreme chassis, LRP Quantum ESC and Futaba radio gear.



PAUL MENDEZ
CLEARLAKE, CA
TEAM ASSOCIATED TC3

Here's a great example of how a simple paint scheme applied to a cool VW Bug can create a really hot ride. Paul runs a TC3 under the Beetle body, and it has an Orion 14-turn Orbital 2 motor, a Futaba ESC, Hitec radio gear, Pro-Line tires and HPI rims.

WIN A ONE-YEAR SUBSCRIPTION TO RADIO CONTROL CAR ACTION MAGAZINE!

Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to *RC Car Action* and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!



CHRIS CHAMBERS
FREMONT, CA
HPI MICRO RS4

Chris calls this HPI Micro RS4 his "show car"; it's just one of four he owns. He decked out the chassis with a ton of hop-ups that include a Futaba Magnum transmitter, LRP ESC, IPD racing chassis, Orion Elite modified motor and a bunch more. The HPI Civic shell was custom airbrushed. Great job!

HANS CARUSO
HAMMONTON, NJ
KYOSHO NITRO USA-1

Watch out if you run into this "Bad to the Bone" USA-1; Hans built it to crush whatever crosses its path. An O.S. RZ-B engine with a heavy-duty clutch and a CVEC pipe powers it, and a host of other goodies (too many to list) make this a truck you wouldn't want to mess with. Nice job, Hans!



The Best Kept Secret in Racing...

REEDY

Reedy "X-cell" GP3300's. Reedy/Yokomo Gold Peak 3300's have longer run times than most other 3300 Ni-MH cells, and have a great low price that makes them your **BEST** choice!

#665 Reedy GP3300
"X-cells", 6-Cells...\$89.99
#664 Reedy GP3300
"X-cells", 4-Cells... \$59.99



Reedy 3300 "Extreme" Sanyos. The newest 3300 Ni-MH cells from Sanyo! The Reedy 3300 "Extreme" cells are cycled, matched, and voltage treated for on-track performance you can really feel.

#660 Reedy 3300 "Extreme" Sanyos, 6-Cells...\$129.99
#659 Reedy 3300 "Extreme" Sanyos, 4-Cells... \$87.99



SALVO MAFODDA
FICARAZZI-ACICASTELLO,
CATANIA, ITALY

**TEAM ASSOCIATED
TC3 FACTORY TEAM**

Salvo sent this photo of his Stratus all the way from Sicily. Under the well-executed "fade" paint job is an Associated TC3 Factory Team car with an LRP Quantum ESC, a 9-turn double motor, an Orion 3300 battery pack and a KO Propo servo. Ellegi foam tires give the car traction, and Salvo controls it with an Airtronics M8.

KEN AND ANDY ONORATO
SHAMONG, NJ
HPI NITRO MT RTR

This father-and-son duo chose the HPI Nitro MTs as their first stadium trucks. These are the duo's first nitro-powered vehicles, and they have a blast racing each other on a homemade backyard track. For now, the MTs are stock, but Ken and Andy plan to add hop-ups. Nice start! ■



and New **MATCHED** Sport Packs!



Reedy's "Rated-X" Matched sport pack batteries use genuine Panasonic or Sanyo Ni-MH cells that have been given the same cycling, matching, and voltage treating as Reedy's championship-winning racing cells. The batteries are fully assembled in clear tubes so you can see the matching info right on the label of each cell. Don't settle for "mystery" cells in your sport packs... get Reedy's "X-Rated" packs and see the power you've been missing!

REEDY

#698 Reedy "Rated-X" Sport Pack, Sanyo cells

#699 Reedy "Rated-X" Sport Pack, Panasonic cells

ONLY
\$59.99

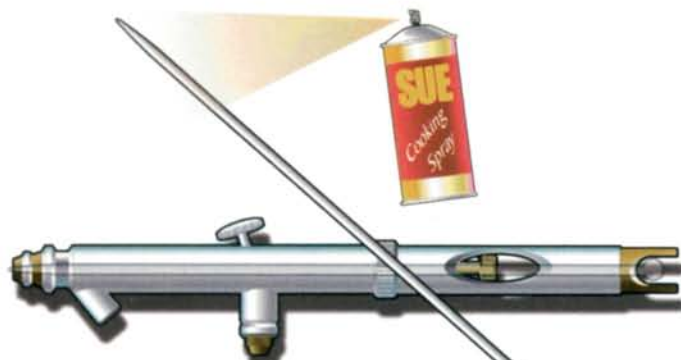


Visit our Website: www.rc10.com/reedy

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HINTS, TRICKS, TIPS AND IDEAS FROM READERS LIKE YOU



NONSTICK AIRBRUSH NEEDLE

After you clean your airbrush, spray the needle with nonstick cooking spray; it will help prevent paint buildup on the needle.

Tommy Roberts
Lake Villa, IL



QUICK AND PERFECT BODY-MOUNT TRIMMING

To cut body mounts cleanly and quickly, use a pair of Craftsman Accu-Cut cutters. The blade is sharp, so it won't pinch the plastic. You'll be left with a clean, flat cut.

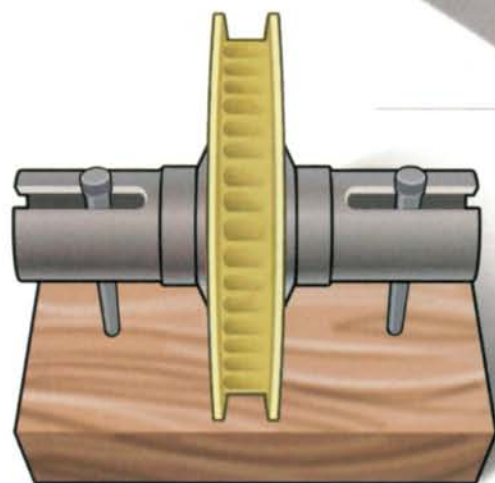
Jason Bothel
Liberty, NY



TAO4 EASY REAR BELT REPLACEMENT

Save yourself some extra steps when you replace the rear belt on a Tamiya TAO4. Drill an access hole in the motor plate that's large enough to accept a screwdriver tip. This way, you can unscrew and remove the bulkhead support that captures the belt without removing the motor plate.

Victor Y. Tan
Davao City, Philippines



HOMEMADE DIFF-TUNING STAND

It's easy to build this simple and very handy stand for tuning ball differentials. Drive two finishing nails (nails without large heads) into a piece of wood. Space them so that the outdrives of the diff can be slid over the nails.

Steve Tidd
Ada, MI

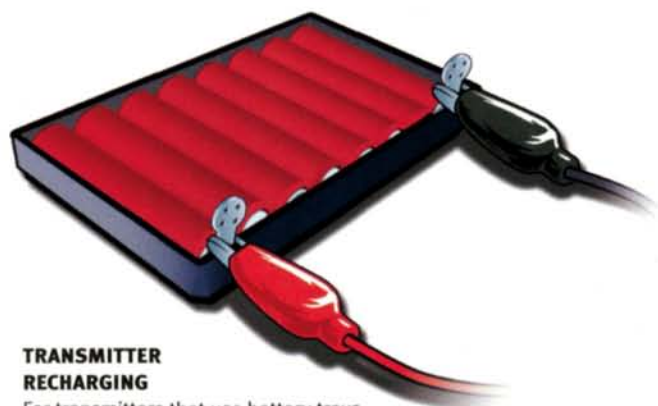


SOFTER TIRES

If your tires are too hard and you want more traction, rub a liberal amount of WD-40 onto them and let them sit for at least 30 minutes. Wipe the tires off, and you'll find that the oil has softened them, thereby giving you more grip.

Dustin Miyakawa
Honolulu, HI

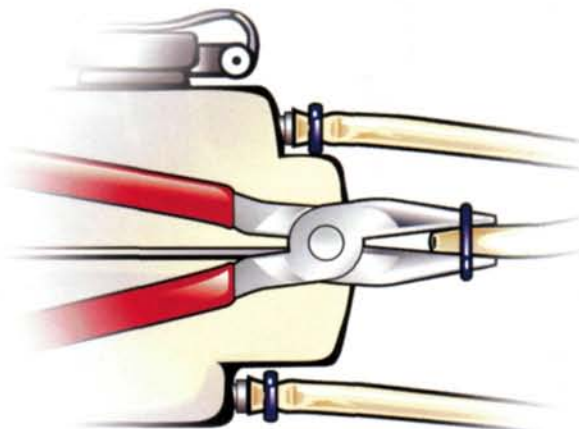
WIN AN OFNA YO-YO, OFNA OB4 AND RC CAR ACTION SUBSCRIPTION! SEE NEXT PAGE FOR DETAILS.



TRANSMITTER RECHARGING

For transmitters that use battery trays, use this tip to recharge your individual NiMH and Ni-Cd cells. Remove the tray from the transmitter, and insert a battery bar where the radio wires connect for power. Clip the charger leads to the battery bar, and you're ready to juice up the pack.

Keith Price
Vernon, AL



SECURE FUEL LINES

An excellent way to prevent fuel lines from sliding off fuel nipples is to use an O-ring with an $\frac{1}{8}$ -inch inside diameter to hold the tubing in place. Stretch the O-ring using needle-nose pliers, then slip the fuel line through it and push the O-ring-tightened tubing over the fuel nipple. The O-ring provides the additional grip to secure your fuel line.

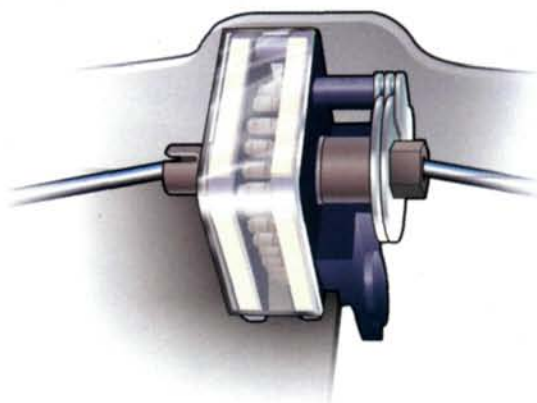
Todd Gaines
Myerstown, PA



STAY-PUT TOOLS

To prevent a tool from rolling off the workbench, attach a zip-tie over the handle.

Denny Ellis
Warwick, RI



MAD FORCE CHAIN GUARD

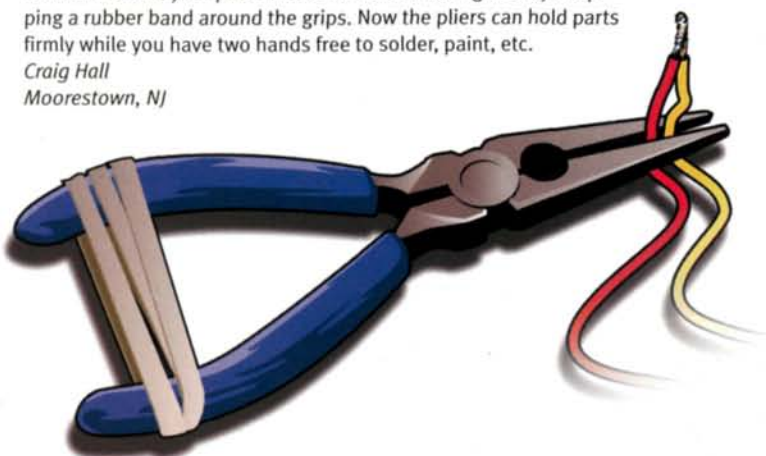
The Kyosho Mad Force's chain is partially exposed on the underside of the chassis. To protect it, make a chain guard out of scrap Lexan. Cut the Lexan so that it covers the exposed area of the chain, and use double-sided tape to hold the shield in place.

Justin O'Neill
Attleboro, MA

EXTRA HAND

You can convert your pliers into a no-hands holding tool by wrapping a rubber band around the grips. Now the pliers can hold parts firmly while you have two hands free to solder, paint, etc.

Craig Hall
Moorestown, NJ



"Pit Tips" are submitted by readers and are screened for functionality, feasibility and safety but are not tested by Radio Control Car Action. Radio Control Car Action and the submitting authors are not responsible for personal injury or damage to models or tools resulting from readers' use of "Pit Tips."

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troubleshooting

YOU'VE GOT PROBLEMS? WE'VE GOT FIXES.

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 ROBINSON RACING PRODUCTS

MICRO WON'T GO STRAIGHT

Every time I give my micro full throttle, it curves to the right. At half throttle, the car tracks straight, but as soon as I grab all of the trigger, the car starts to go right again. I have adjusted the ball diff, but that doesn't seem to help. Do you have any suggestions for me? [email]

Chris Phan

When your car won't track straight, it's usually a drag—literally! That's why you should check all four wheels to see whether one of them is dragging. If a tire on the right side of the car is too tight and isn't rotating freely, your problem is solved. If this doesn't solve the problem, there are a few other areas to check. Remove all four wheels, and check inside the rims to see whether there's any wear caused by binding or rubbing. If you see such wear, figure out where it's coming from and remove whatever is causing it. Check the front diff (or one-way, if you have one installed) to make sure that the bearings are in good shape and spin smoothly.



Left: after you've removed the wheel hub from the car, check for wear marks on the inside edge of the hub and the end of the top A-arm. You might need to remove some of the material on the hub so it doesn't rub the A-arm.

Right: if the front diff bearings (arrowed) get dirty, they might hinder the drive train. Remove them, and check to see whether they spin smoothly.



REAL PERFORMANCE PRODUCTS!

T-Maxx/2.5-Maxx Steel Top Shaft

NEW



This precision machined **hardened** steel top shaft will fit all T-Maxx. Includes oversize ball bearing. RRP 8525

T-Maxx/2.5-Maxx FORWARD ONLY Steel Gear Kit

NEW



This kit contains a 26T **hardened** steel output gear, a forward drive hub adaptor, steel spacer and Pin. RRP 8586. **Hardened** aluminum version RRP 8585.

T-Maxx/2.5-Maxx Hardened Forward Primary Gear

Precision machined from solid steel and then **hardened**. RRP 8529. **Hardened** aluminum version RRP 8528.

NEW


www.robinsonracing.com

T-Maxx/2.5-Maxx Forward Primary and Reverse Gears

NEW



This kit contains a precision machined **hardened** steel primary forward gear, a **hardened** aluminum reverse gear and pin. RRP 8521

MAKE NO COMPROMISES!

T/E-Maxx/2.5-Maxx Accessory Spurs



A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72, 74 and 76T sizes, RRP 82XX, or CNC machined steel spurs available in 65, 72 and 76T sizes, RRP 83XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

T-Maxx/2.5-Maxx Lightened Spur And Double-Disc™ Slipper Kit



RRP's NEW line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx/2.5-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch Plate/Gear Adaptor, 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes: RRP 8166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx. RRP 8172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro. RRP 8465 Slipper Kit with 65T Steel Spur for Traxxas Nitro. RRP 8472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx. Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.

T-Maxx/2.5-Maxx Primary Reverse Gear

NEW



This gear is precision machined from solid aluminum and **hardened**. Includes pin. RRP 8522

HEX-NUT WOES

The drive hexes in the rear of my nitro truck keep stripping. The axle pin eventually wears out the groove in the rear portion of the hex; this has happened several times. What should I do? [email]

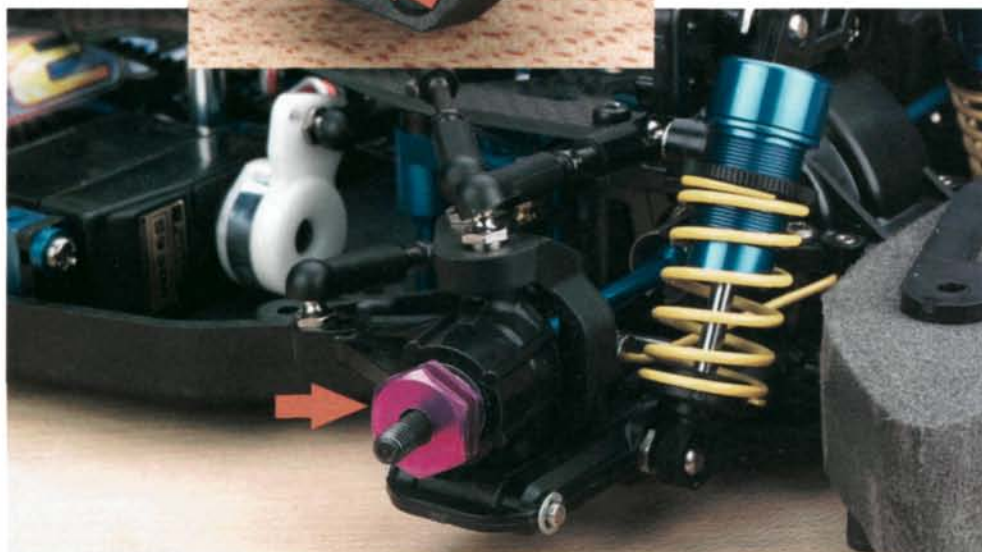
Angel Gonzalez

When you install hexes, make sure that they snap into place on the pins. They can feel secure yet not be properly seated. The pins should also fit the entire cutout in the plastic hexes. Some factory pins are too small and/or too thin for the hexes, and they eventually wear out the plastic. If this happens, take a new hex and axle to the local hobby shop, and test-fit some pins to see which brand fits best. You should also make sure that you tighten down the tires after every few runs so the hexes can't back out and strip. If you still have problems, you can shell out some extra dough for aluminum hexes and get rid of your problem once and for all.



Left: as you can see, this drive hex's pin wasn't seated correctly. The car will run with it this way for a while, but the drive hex will eventually wear out.

Below: if your problems with the plastic units persist, try a set of aluminum drive hexes such as the ones shown here. They'll be difficult to wear out.



T/E-Maxx/2.5-Maxx Steel Diff Gear Set



T/E-Maxx/2.5-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel Phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP \$590

T-Maxx/2.5-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. Also fits newer T-Maxx. RRP \$562. Older style half shafts use Brake Kit RRP \$560.

www.robinsonracing.com

T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP \$551 Blue, RRP \$550 Natural Silver. **NEW 2.5-Maxx Vented Flywheel, Blue Only RRP \$552.**

T/E-Maxx/2.5-Maxx Replacement Pinion



This precision-machined steel pinion fits RRP \$590 Diff Gear. RRP \$591

FORWARD ONLY Racing Gearbox For T-Maxx/2.5-Maxx



Precision CNC machined from aircraft grade billet aluminum this FORWARD ONLY Racing Gearbox will give your T-Maxx or 2.5-Maxx a serious competitive edge. RRP \$595

ROBINSON RACING PRODUCTS

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EXCESSIVE COMM LATHE NOISE

I've been having trouble using the lathe I bought a couple of months ago; when I get everything set up and begin cutting the comm, the comm makes a loud grinding noise. I use a carbide bit, and it sounds as though it's chipping away at the comm. Do I need a diamond bit, or can the problem be fixed? [email]

Ruben Casarez

You don't have to buy an expensive diamond bit; your problem can easily be fixed. First, check to make sure that the cutting portion of the bit is lower than the rest of it when it's clamped into the lathe. Next, install a comm and line it up so that the bit cuts directly in the middle (or slightly above the middle) of the comm's diameter. Before you move the bit closer for cutting, drip a couple of drops of cutting oil on the comm. Plug in your power supply, and set it at 4 volts, or, if you're using a 4-cell battery, make sure that it's fully charged. As your bit gets closer to the comm, turn the adjusting knob very slowly until the bit contacts the comm just slightly. Now you can use the cross-slide to complete the cut. Don't try to cut too much all at once; it's better to make a few small cuts than to make one large cut that can damage the comm. For an in-depth look at comm-cutting, check out our newly published book, "Radio Control Power Tuning," available at bookstores now.



To reduce chatter, make sure that the cutting edge of the lathe is directly in line with the center of the comm.



Check out our "Radio Control Power Tuning" book for an in-depth article on how to cut commutators.

RS4 Nitro Aluminum Brake Kit



Lightweight aluminum, variable braking system. RRP 1575

RS4 Nitro Vented Flywheel



Aluminum-vented flywheels move air over clutch bell, improving performance and cooling. RRP 1570 RRP 1571 Pull Start

T-Maxx/2.5-Maxx Hardened Steel Clutchbells



CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119; 20T RRP 8120; 21T RRP 8121 and 23T RRP 8123.

RS4 Nitro Small Aluminum Drive Pulleys



Hardened drive pulleys, sold in pairs. RRP 1538

48P Absolute Series Pinions



Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! Available in 48P in 16T thru 28T sizes. RRP 1416 - RRP 1429.

48P / 64P SuperLite Aluminum Pinions



They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T, and 64P in 24T thru 38T. RRP 30XX (48P) add RRP 31XX (64P). Only \$5.25

Stealth Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any Associated or HPI electric car or truck. RRP 1860 thru RRP 1896.

RC-10GT 48 Pitch Spurs



Precision machined from heat-resistant, super tough plastic, these spurs mesh flawlessly with our Clutchbells. Available in 63T thru 67T. RRP 2263 - RRP 2267

48P Hard Nickel Plated Steel Pinions



These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

ENGINE ISSUES

After I've driven my nitro truck around a nearby construction site for a few hours, the engine starts to run erratically. When I first get there, the truck runs great—no problems. After four or five tanks, though, the engine dies for no apparent reason. At that point, I have trouble starting the truck and keeping it running. I clean my truck really well after every outing and thoroughly inspect everything, and I can't figure out what's wrong. What the heck is it? [email]

Steve Reed

The first thing you should check is the air filter; you would be surprised at how gunked up it can get. Take it apart, and thoroughly clean it. You can also try using a larger air filter if you are not already running one. The ones that come stock on most 1/10-scale trucks can be replaced with a larger filter from a .21-size engine. When the larger filter gets dirty, the carb will still be able to take in enough air to allow the engine to run properly. Also, check the brass nut that secures the fuel-feed tube and high-speed needle; if it's loose, it may cause unwanted air leaks. Last, check the carb to make sure that it's tight. You should not be able to rotate it, but if you can, tighten it; air can enter here, and it will change your engine's fuel and air mixture and give you all sorts of problems. ■



After a day of racing, remove the foam filter and wash it with soap and water.



The filter on the right is of the size that's usually used on 1/10-scale trucks. Try using a larger filter, such as one that's used in .21-size engines (left). It has a larger surface area, so the engine can "breathe" more easily, even when it's dirty.

TOOLBOX

Niftech high-temperature soldering iron

A high-temp soldering iron such as this one from Niftech is essential for heavy-duty soldering. It's claimed to reach 950 to 1,000 degrees Fahrenheit, it recovers quickly after each use, and it comes with a flat tip for plenty of surface-area contact—perfect for assembling battery packs. Niftech also offers a weighted stand for the iron. It includes a tip-cleaning sponge and is easily disassembled for toolbox storage.

Soldering iron—item no. 6400; \$39.95.
Soldering iron stand—6401; \$24.95.
Niftech (440) 257-6018; niftech.com.



NEED HELP?

Send your "Troubleshooting" questions and comments to Jason Sams, jasons@airage.com.

RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. RRP 2365

RC10-GT Hardened Steel Idler Gear



Cut from solid steel stock, this RC10-GT gear is lightened and hardened for super quiet precision and extra long life. Black tranny grease included. RRP 2213

Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

www.robinsonracing.com

Blue Lightened Slipper Kit



The rear plate is hard anodized and the front plate is color treated. The front plate holds the pad forcing it to slip on the rear plate. When pad wears, just flip it over for a new surface. RRP 1515 Associated

Hardened Diff Gear



Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT

RC-10GT Hardened Steel Clutchbells



These steel Clutch Bells are CNC machined from solid steel then the teeth are machined on. This makes the part stronger with less gear "run out". Available in 14T thru 20T, 22T and 24T. RRP 22XX

TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T, RRP 1670 - RRP 1680.



ROBINSON RACING PRODUCTS

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FIRST LOOK >>

Hot Bodies Dirt Demon

by Bob Hastings

The greatest competition among RC manufacturers now seems to be in the 1/8-scale 4WD monster truck segment. Every company wants to produce a winner, and they adopt a variety of strategies to do this. Hot Bodies' new Dirt Demon combines the most notable features of the top monsters in one huge package. Look forward to a big-block .25 engine, a 2-speed, a reversing transmission, huge ground clearance and a battery-powered hand-held starter unit. The ink on the truck's final specs isn't dry yet, but we know you want to check out this prototype!



We don't yet know what the production Dirt Demon's body will look like, but we used Hot Bodies' new Suburban shell. Looks good!

The Dirt Demon is one of the largest monster trucks available; its footprint is longer and wider than that of the HPI Savage, and the truck is slightly taller than DuraTrax's Thunder Quake. With increased size usually comes more weight: the Dirt Demon tips the scales at slightly more than 12½ pounds.

SPECIFICATIONS

MANUFACTURER
Hot Bodies

MODEL
Dirt Demon

DIMENSIONS
Wheelbase 14 in. (355.6mm)
Width 18.6 in. (472.4mm)

PROTOTYPE WEIGHT
Total 12.5 lb. (5.07kg)

CHASSIS
3mm aluminum plate

DRIVE TRAIN
4WD shaft w/steel spur gear and dual-disc brake

AXLES
Type (F/R) CV-type universals/dogbones

DIFFERENTIALS
Planetary gear

BEARINGS
Metal-shielded ball bearings

SUSPENSION
Upper and lower A-arm w/pivot balls

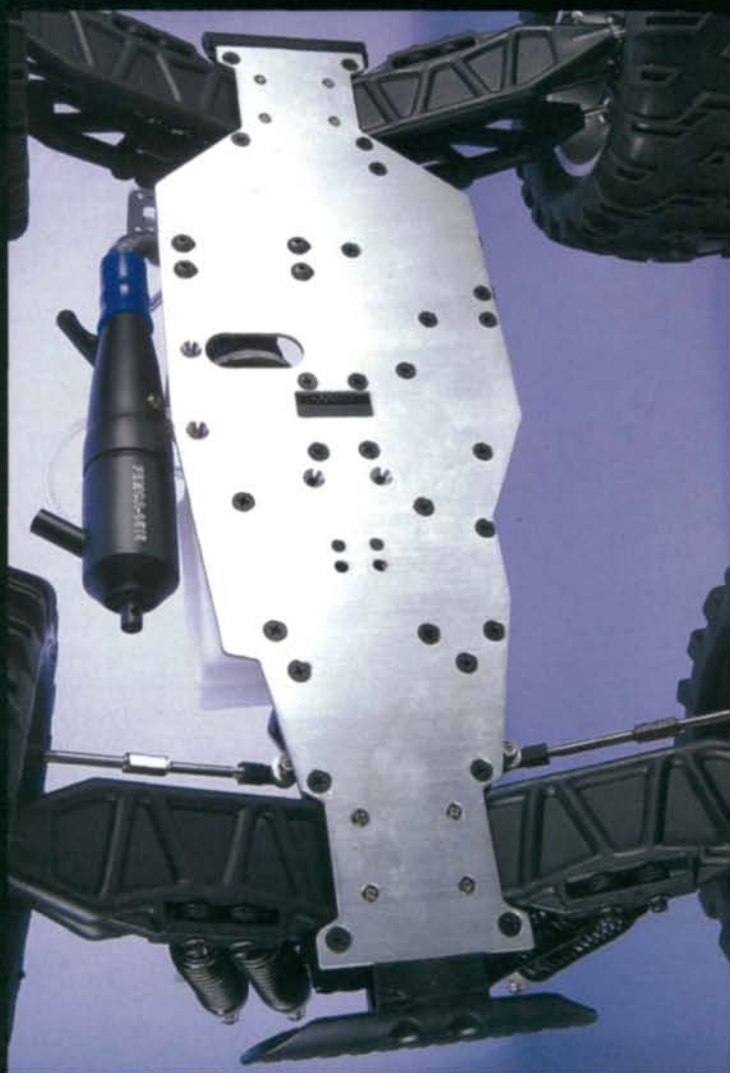
SHOCKS
8 aluminum-body, coil-over (fluid-filled)

WHEELS
Type: one-piece plastic, chrome finish
Dimensions: 4.1x3.4 in. (104x86mm)

TIRES
Type: Hot Bodies modified chevron-tread
Dimensions: 6.75x4 in. (171x102mm)

Possessed Prototype

FIRST LOOK >>



Check out the countersunk Phillips-head screws on the underside of the 3mm aluminum plate (the four button-head engine fasteners aren't countersunk). Trends change so rapidly that the plain, satin-aluminum plate looks totally fresh.

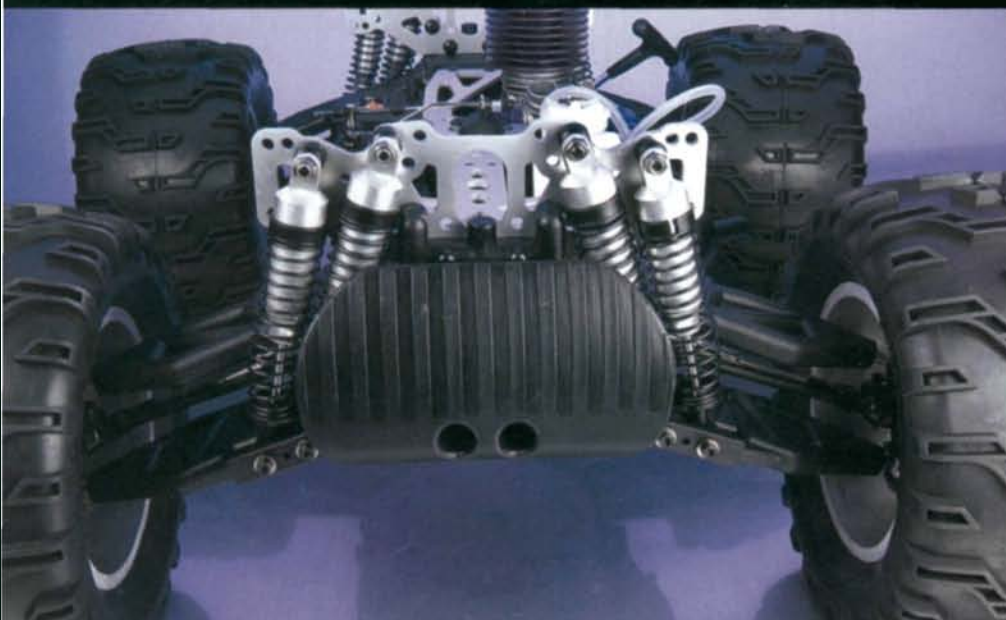
DIRT DEMON



When the receiver switch is installed, the Dirt Demon's radio box is fully sealed. Note the third servo (A) in the middle of the tray; it actuates the compact reversing mechanism (B) that is tucked under the center brace. You can also see the 2-speed tranny's housing (C); the linkage is for the disc brake.



A big truck needs lots of braking to keep it under control; the dual discs are slowed by a cam-type, 3-caliper unit with fiber pads.



The front bumper looks as though it's ready to push cattle off train tracks. The big fluted plate is attached to the plastic diff housings. The front and rear diffs are planetary-type gear units driven by large, steel dogbones.



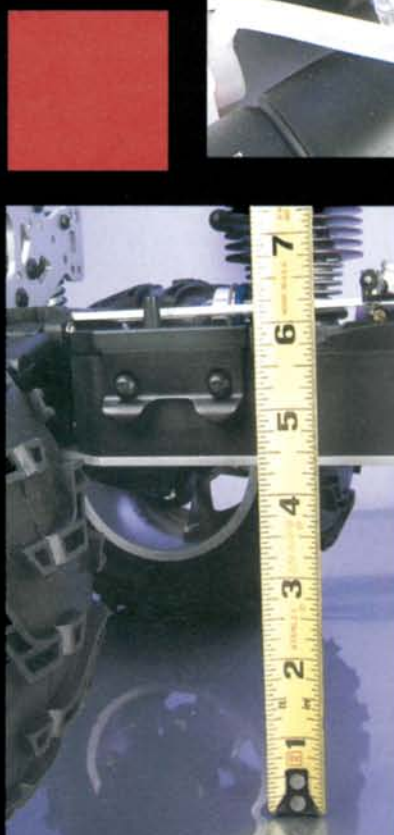
The plan is to release the Dirt Demon as a full RTR with Hot Bodies' usual complement of support gear. Expect a 4-way wrench, a fuel bottle, a glow igniter, radio batteries and a new, electric, wand-type starting system for the .25 engine. The radio specs are still being worked out, but count on a high-torque steering servo and a toggle-switch-operated third channel to actuate the reverse gearing.



The Hot Bodies .25 engine features a 2-needle slide carburetor and spring-coupled exhaust manifold. To fire up the engine, HB plans to use an electric-wand starter equipped with a dogbone-style shaft. The shaft fits through the rear suspension to engage a starter drive cup on the engine's backplate.



The suspension features very thick wishbones and strong metal pivot balls on each arm. Two aluminum-body shocks damp the truck's suspension. There are steel universal axles up front, and the rear wheels are motivated by large dogbones.



How's this for ground clearance? With nearly 5 inches of daylight under the chassis, the Dirt Demon should be able to clear just about any obstacle.

The 125cc fuel tank seems to be the standard among big-block monster trucks. The Dirt Demon's tank has an inline fuel filter and recessed pressure inlet.



THE VERDICT—SO FAR

How will the Dirt Demon fare among the large field of big players? My guess is pretty well—just a guess because our prototype wasn't ready to be run. But let's consider its features: the .25 engine should provide plenty of thrust; the thick, pivot-ball suspension and aluminum shocks look capable of withstanding a lot of off-road punishment; and the steel-gear, reverse-equipped driveline looks pretty stout, too. Let's hope that this all adds up to a bunch of fun; after checking out this prototype, we're eager to give the production version a pounding!

SOURCE GUIDE

HOT BODIES (909) 296-9340; hotbodiesonline.net.

FIRST DRIVE >>



by Peter Vieira

Has any manufacturer been more prolific in the 1/8-scale buggy market than OFNA?

It's not even close; since OFNA first tapped into the big-block buggy scene nearly 10 years ago, no other brand has even approached the sheer volume of makes and models that wear OFNA decals. The 9.5 and Hyper series are the latest O-buggy successes, and it's the Hyper line that gets a new addition this time. The Hyper 7 RTR and Pro models will soon be joined by the buggy you see here: the Hyper 7 PBS. That's PBS as in "Pivot Ball Suspension," a feature that makes the new buggy more tunable than the C-hub/hinge-pin versions. The new machine is more powerful, too, thanks to an 8-port version of the Hyper .21 engine. OFNA is still tweaking the specs, but the Hyper 7 PBS that lands on your dealer's shelf should look—and run—like our First Drive tester.



OFNA HYPER 7 PBS

8-port POWER PLAY



PHOTOS BY WALTER SIDAIS



Starter Box Included!

The Hyper 7 PBS will include the starter box shown here. It's incredibly light because it's made of plastic instead of metal, and this makes it much easier to tote around. Inside, a heavy-duty motor spins the starter wheel via a belt-drive system, and a pair of stick packs (not included) provides the power. The best part? Since it's made for the Hyper 7, the starter wheel is so easy to line up on the chassis that you could do it with your eyes closed (but keep 'em open, just to be safe).

SPECIFICATIONS

MODEL Model Hyper 7 PBS

MANUFACTURER OFNA

PRICE \$599

Price varies with dealers

Engine Hyper 8-port pull-start

Exhaust Tubular manifold and tuned pipe

Radio gear Airtronics Blazer Sport AM with 94102 steering and throttle servos

Wheelbase 12.75 in. (324mm)

Width (F/R) 11.75 in. (298mm)/12 in. (305mm)

Weight 128.6 oz. (3,646g)

Included accessories Fuel bottle, spare glow plug, glow starter, starter box

hyper 7 features

1 HYPER 21 BUMP-START 8-PORT ENGINE

Check out the "Hyper Speed" sidebar for details on this new engine (here's the short version: it's fast).

2 PIVOT-BALL SUSPENSION

Since the Hyper 7 PBS draws its name from this feature ("PBS" stands for "pivot ball suspension"), it must be something special—and it is. The thick-wall steering arms and rear hub carriers hold extra-large 14mm pivot balls and use plastic-padded aluminum retainers to dial out unwanted play. Front caster is adjusted by sliding the upper arms fore and aft, and aluminum rings prevent tear-out and reduce pivot-ball shaft flex. Steel turnbuckles adjust camber in the rear, and a pair of pivot balls in each hub makes possible fine adjustments to toe and track.

3 FOUR-BOLT RADIO BOX

Removing four screws for receiver access isn't quite as easy as yanking out a body clip, but look at the bright side: ain't no way dirt is getting in there! At least, not after you seal the inexplicable hole in the top of the lid. A silicone switch cover gives extra protection against dirt and moisture making it to the receiver.

4 DUAL FUEL FILTERS

In addition to the purple-anodized in-line fuel filter, the Hyper 7 carries a stone-type filter inside its 124cc tank. Make no mistake, the fuel will be scrubbed clean by the time it hits the carb! Note the spill guard alongside the tank; it protects the front brake rotor.

5 CVA FRONT AXLES AND 7075 ALUMINUM DOGBONES

We've come to expect universal-joint front axles on OFNA buggies, and the CVA units are as reliable as ever. The aluminum rear dogbones are a new feature; they're significantly lighter than steel, but plenty strong thanks to their hard-alloy construction and thick cross-section.

6 4MM SHOCK TOWERS

Nothing pounds on a set of shock towers the way an 1/8-scale buggy does, so strong parts are a must. No worries here; at 4mm thick, the Hyper's towers ain't budging. There are plenty of shock-position options, too, with six holes up front and five in the rear.

7 HARD-ANODIZED 3MM CHASSIS WITH KICK-UP

The tough anodized coating prevents rough tracks from whittling away the chassis' tail end, and naturally, the underside is fully countersunk. There's ample clearance for the starter box's bump-wheel, and plastic side guards prevent rocks and debris from finding their way under the body. Plastic "buttress" supports and a plastic bellcrank brace are the finishing touches.

8 FIRE TIRES

RTR buggies often include gnarly-lookin' tires that might be good for the backyard but aren't the hot setup on a racetrack. The Hyper 7 PBS isn't one of those buggies; the Fire tread's herringbone design should hook up pretty well on hard-packed surfaces.

9 VENTED STEEL DISC BRAKES

Sorry; no quad-brake setup (but there is room to add two more discs and their calipers). The dual brakes should give all the stopping power you need for all but the most brake-intensive tracks. The vented steel rotors are slotted into plastic guides to prevent flutter, and padded-steel calipers do the grabbing.

10 EIGHT-GEAR CENTER DIFFERENTIAL WITH ALUMINUM HOUSING

You read right; six spider gears have been crammed into the center diff (plus two output gears, for a total of eight), and it's clamped shut by a steel spur gear. This is heavy-duty stuff and good insurance against the 8-port engine causing a diff meltdown.

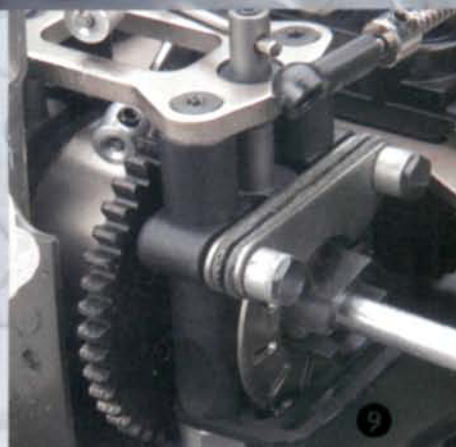
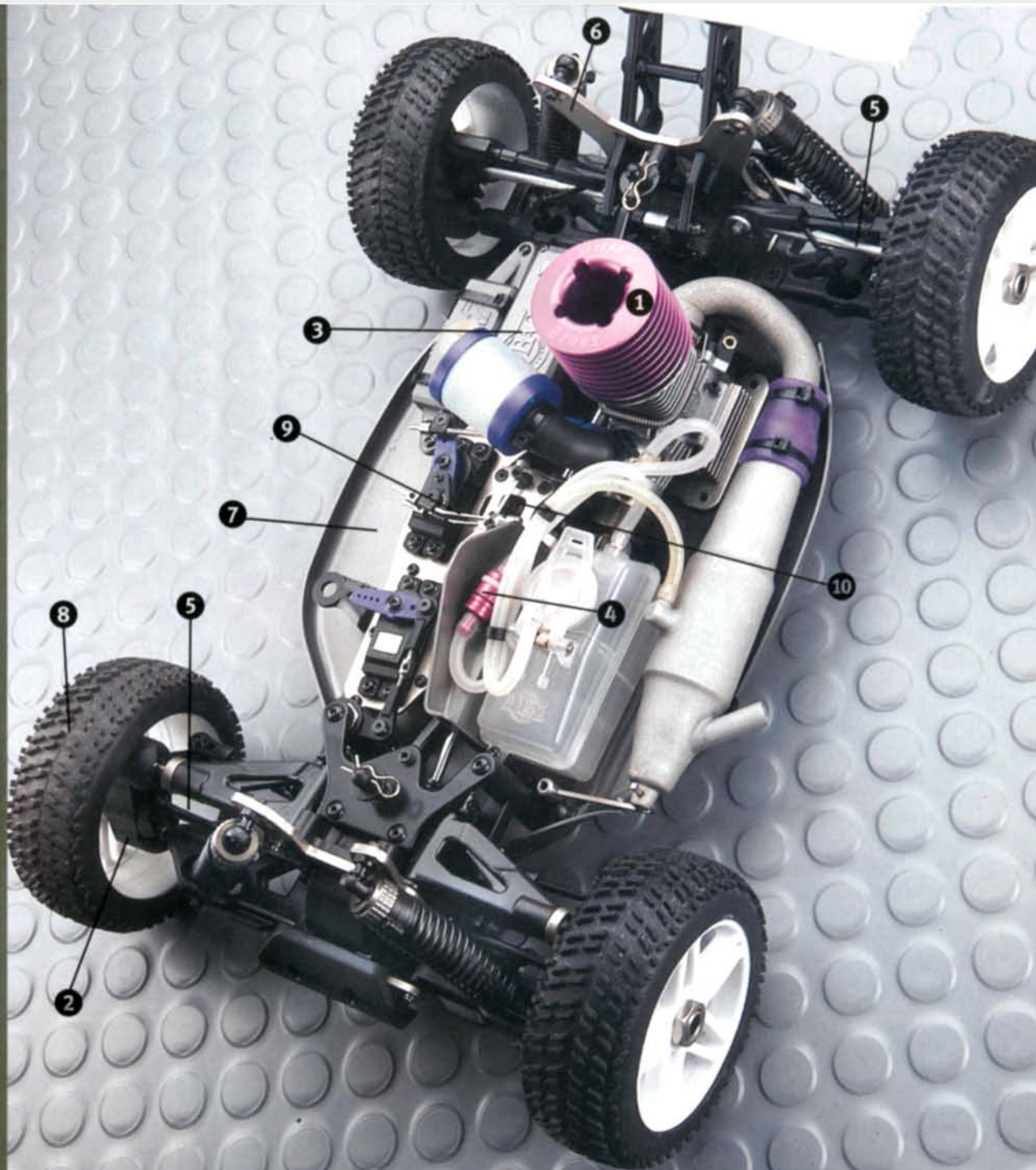
IT'S READY TO RUN

Like all the newest OFNA buggies, the Hyper 7 PBS is fully assembled, painted (printed, actually) and ready to hit the track. This has to be the best-looking buggy on the market; just look at the pictures. Nice wing, attractive split-spoke wheels, and that body—wow. OFNA also includes a glow-starter, a fuel bottle and a spare glow plug to get you started right.

The radio gear is OFNA's standard setup: an Airtronics Blazer Sport AM radio system (now with dual-rate steering) and a pair of 94102 "standard" servos. The 94102 servo will steer the buggy well enough for play, but an upgrade to a high-torque steering servo will let the Hyper PBS show you what it can really do.



OFNA HYPER 7 PBS



HYPER SPEED



More ports, more power. That's the thinking behind the latest version of the Hyper .21 engine, which has served OFNA well in the original Hyper 7 buggy and Monster Pirate/Dominator trucks. The Hyper now has eight ports versus the usual four of the standard Hyper .21; that means you can expect the new mill to make more top-end power with a higher practical rpm range. In other words, you go faster. But there's more to the new engine than a few extra holes in the sleeve; take a look.



Plastic carburetors are the high-performance choice; they don't distort like aluminum when heated, so your mixture settings stay true, and less heat is transferred to the incoming fuel and air. A cooler mixture makes more power, and that's why plastic carbs are used on all the latest high-performance engines. With the clutch bell removed, you can see the Hyper's 3-shoe clutch.



The piston has an oil groove (arrowed) to help keep it well-lubed as it cycles through the chrome-plated sleeve. The sleeve's eight ports (including the exhaust port) are chamfered to help the fuel/air mixture pass through the combustion chamber as efficiently as possible.

FIRST DRIVE

The Hyper 7 PBS's pivot-ball suspension makes it precisely adjustable to suit track conditions but does not change the feel of the car; if you set the angles to match a Hyper 7 Pro or RTR, the PBS will handle the same as those other Hyper 7 variants. Once you install an appropriately powerful steering servo, you'll get aggressive turn-in with a slight tendency to oversteer when it's pushed past the limits of traction. You'd have to be a total spode to lose it in a turn; the car gives you plenty of warning before it slips and is easy to recover if you do get crossed up.

The Hyper 7 PBS is really an engine story; when compared with the Hyper 7 RTR, with its standard 4-port Hyper .21, the new 8-port Hyper powerplant is in a whole 'nother league—not that there's anything shabby about the standard Hyper .21; it's a very solid sport engine. But the 8-port mill keeps making power high in the rpm range, and that gives the Hyper 7 PBS much longer legs on the straightaways (or, if you like, more speed for impressing the neighbors). Though more powerful, the 8-port engine appears to be no less reliable or easy to tune than the 4-port version. It is more responsive to needle changes, however, so don't adjust the needles in big whacks; an 1/8 turn is plenty. As with any high-performance engine, it's particularly important to break in the Hyper 8-port engine properly; see the January 2002 issue of *RC Nitro* to do the job right, and when in doubt, break in the engine for an extra tank or two. ■



SOURCE GUIDE

OFNA RACING (949) 586-2910; ofna.com.

Tamiya Enzo Ferrari



I NOW WALK ON ALMOST SACRED GROUND; I've joined the fortunates who own Enzo Ferraris, and we share an unshakable reverence for the finest piece of automotive machinery on the planet. The F1-inspired supercar is named after the company's late founder, Enzo Ferrari, whose passion for auto racing and cost-no-object supercars put the most amazing machines on tracks and roads.

Ferrari's latest mega machine pumps out 660 bhp, runs an 11-second quartermile and tops out at an estimated 217mph.

OK; so my Tamiya TB-01 Ferrari is not quite as big and as expensive as a "real" one, but it's as close as I'll ever get to a car that sells for \$652,830 (that's Ferrari's suggested price), and as a Ferrari fanatic, I'm excited to have it.

PHOTOS BY WALTER SIDAS



Italian
stallion!



Tamiya includes a finned heat sink for the Enzo's 540 motor. Unlike most electric Tamiya kits, a mechanical speed control is not included.



Molded oil-filled shocks ensure very smooth suspension action. I sprayed the wheels, which are close replicas of those on the full-size Ferrari, with chrome paint to make them look like alloy wheels.

THE TB-01'S SHAFT DRIVE SHRUGS OFF THE PARKING-LOT DEBRIS THAT CAN SIDELINE BELT-DRIVEN CARS.

DATA CENTER

VEHICLE TYPE 4WD shaft-driven electric touring car kit
BEST BUYER Entry-level to intermediate builder and Ferrari fanatics
KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Excellent
Parts fit and finish Very good
Durability Very good
Overall performance Satisfactory (very good, if you upgrade to a faster motor)

SPECIFICATIONS

MANUFACTURER Tamiya
MODEL Enzo Ferrari TB-01
DISTRIBUTED BY Tamiya USA

SCALE 1/10
PRICE \$220
Varies with dealer

DIMENSIONS
Wheelbase 10.19 in. (257mm)
Width 7.95 in. (202mm)

WEIGHT
Total, as tested 56.8 oz. (1,610g)

CHASSIS
Type Molded tub type with molded upper brace
Material Plastic

DRIVE TRAIN
Type Shaft-driven 4WD
Primary 19T pinion/58T spur gear
Transmission ratio 2.6:1
Final drive ratio 7.94:1
Drive shafts Steel dogbones
Differentials 5-gear bevel-type
Bearing type Metal-shielded ball bearings

SUSPENSION
Type (F/R) Lower H-arms/ threaded upper links
Shocks Molded plastic with bladder seals

WHEELS
Type One-piece split 5-spoke (à la Ferrari)

TIRES
Type Tamiya hard-compound Racing Radials

INCLUDED ELECTRONICS
Motor Mabuchi 540 with clip-on aluminum heat sink

KIT FEATURES

CHASSIS. The TB-01's tub-style, molded-plastic chassis has been used with seven other Tamiya bodies in various kits and was the foundation of the original TB Evolution chassis (although the Evo II and the new Evo III have little in common). This tub design, with its central reinforcing rib, is pretty strong. It's further strengthened during assembly when the molded upper brace is installed. The electronics and motor are on the left side of the chassis, and there's space for a 6-cell battery on the right.

The front is protected by a molded-plastic-and-foam bumper. The molded-plastic part looks the usual size, but the foam section is quite large—undoubtedly to support and protect the body's long nose.

DRIVE TRAIN. The TB-01 features a shaft-drive system. Identical gear diffs are installed in identical diff housings that are attached to each end of the chassis. The diffs are connected with an aluminum center drive shaft. A spur gear is mounted right on the drive shaft; the shaft, in turn, drives the diffs. The spur gear is indexed to the drive shaft with a drive pin that's much like the pins for the 12mm wheel hubs. Steel-dogbone drive shafts turn the wheels.

SUSPENSION AND STEERING. At all corners are two-piece lower suspension arms. A front half and a rear half are screwed together to form a fairly solid, bulky suspension arm. A horseshoe-shaped, two-in-one hinge pin attaches the lower arms to the diff housing. Threaded upper links form



Above: the drive shaft runs through the center of the car and is very close to the motor and electronics. If you take the time to test-fit the components before you install them, you'll find there's enough room even for large components. **Right:** the TB01's steering hardware includes double bellcranks and a servo-mounted servo-saver. The linkage rods don't have turnbuckles, so to set the toe angle, you have to pop off one of the rod ends.

the upper half the suspension. Making camber and toe adjustments takes a little more time because the links are not turnbuckles.

Damping is handled by molded-plastic oil shocks. Double O-rings seal around the shock shaft, and a silicone bladder in the shock's cap is for volume-compensation when the shock is compressed. There are two mounting holes on the shock tower.

The completed suspension assembly has a little extra tolerance that lets the components wiggle a little more than is usual, but it keeps the suspension intact during a hard impact.

BODY, WHEELS AND TIRES. Tamiya has always masterfully reproduced full-scale vehicle bodies with accuracy and full details, and it has another beauty here. The body's clear polycarbonate nose has great wraparound details, and the areas around the taillights and lower diffuser are perfect. Tamiya even widened the car's rear with longer wheel hex hubs to bring the wheels and the bodywork out to the proper scale width; it's really $\frac{1}{10}$ scale. The body has 50 decals; with this many decals and the inevitable task of having to mask to paint the black trim around the lower edge, it's no wonder that the body takes as much time to detail as the chassis does to build. The payoff is that you have a really sharp-looking body that's just like the original's. Ferraris don't have to be red, so I painted this one with Pactra's Daytona Yellow and Outlaw Black (for the trim). As the last touch, I tinted the windows with Tamiya's "Smoke" paint.

The wheels are faithful replicas of Enzo's split 5-spoke alloys, but the material used to mold them is a dark gray that's a few steps removed from a true alloy finish. I sprayed the wheels with Alclad chrome that gives a very realistic satin finish. If you use it, I recommend a good clear finishing coat because it is so delicate that it can be rubbed off the wheels pretty easily. The included hard-compound Racing Radials have a true-to-scale street-tire look.



BUILDING & SETUP TIPS

For years, Tamiya's assembly instructions have been the standard against which others are judged, so building the Enzo won't be a significant hurdle for anyone with a Phillips screwdriver and a hobby knife. Having built the car, I can offer a few additional pointers that might help.

STEP 16. Be careful where you install the electronics. The drive shaft runs through the center of the chassis—straight through the compartment that houses the electronics. Be sure to install the electronics away from the center to leave room for the drive shaft.

STEP 21. Thread the antenna wire through the antenna holder (E1) before you attach the holder to the bulkhead. It can be difficult to thread the antenna wire through after the holder has been installed.

STEP 25. Attach the rear body mounts before you attach the tops of the rear shocks. If you don't, the shocks will get in the way when you want to access the screw used to fasten the rear body mounts to the shock tower.

STEP 27. If you decide to paint the wheels, especially with Alclad chrome paint, be very careful when you install the tires. You might scratch the paint or rub it off.

STEP 33. If you decide to paint the mirrors, start with a light base coat, preferably of the same color as you use to back up the body color. This will ensure that the mirror color matches the body color.

YOU'LL NEED

- Radio system and steering servo
- 6-cell battery pack
- Electronic speed control (ESC)
- Battery charger
- Polycarbonate paint
- Tire glue

FACTORY OPTIONS

- Super low-friction damper set (4 aluminum shocks)—Item no. 53280
- Aluminum servo stay—53308
- Ball-differential set—53360
- Aluminum racing steering set—53365
- Aluminum gearbox mount—53366
- Turnbuckle tie-rod set—53388
- Turnbuckle upper arm set—53392
- Aluminum motor mount—53403
- Universal drive shafts (F/R, short/long)—53409/53410
- Aluminum suspension mount—53414

PERFORMANCE

The full-size Enzo Ferrari just oozes performance, but the Tamiya version seems to have been designed more to honor the revered Italian supercar than to turn hot laps at the local track. It has been optimized for long run times and an authentic appearance rather than speed on the track.

This version of the TB-01 is equipped with a standard 540 motor. Its overall performance is very conservative for someone with experience, but it's a good motor for first-time drivers. The good news is that it doesn't take much more than an aftermarket competition stock motor or an inexpensive mild modified to really give the car a kick in the pants.

The hard-compound tires make cornering smooth and predictable. Any erratic steering inputs from you are absorbed by the subtle slip of the tires, so the Enzo is very easy to control. Softer-compound tires would sharpen the steering response, which is already fairly well balanced; the suspension is a little soft, but if you want to get the car more dialed, it's easy to tune it for a variety of driving styles.

It's worth noting that the Enzo is qualified to run in Tamiya's popular TCS racing series (only Tamiya vehicles are allowed), and there are a couple of classes in which it could do quite well. The GT2 and GT3 classes would be fertile ground for a well-optioned Enzo. At 202mm (rear), it would be the widest car in the field, and its shaft-drive system can do well against

the belt-drive cars as long as the Enzo also has a few trick option parts such as a ball diff in the rear, one-ways in the front and maybe upgraded shocks. The shaft drive and extra width could be a Enzo's one-two punch in the GT2 and GT3 classes.

LIKES

- Excellent body detail.
- Full ball bearings.
- Easy-to-maintain shaft drive.

THE VERDICT

Other versions of the TB-01 sell for about \$50 less than the one with the Enzo Ferrari body, so if you're just after a TB-01, there are less expensive alternatives. Anything that carries the prancing-horse logo will cost you a premium, but if you're into the Enzo Ferrari as much as I am, this is a great car that performs well as a high-style cruiser, has significant upgrade potential and is easy to build. It will also be a viable contender at the Tamiya TCS races if you decide to compete.

DISLIKES

- Love the body, but it takes as long to detail as it does to build the chassis.
- Included motor is OK for first-timers but will have most drivers looking for more speed.



THE SHAFT DRIVE AND EXTRA WIDTH COULD BE A ENZO'S ONE-TWO PUNCH IN THE GT2 AND GT3 CLASSES.

Airtronics MX-3 FM radio

The MX-3 is Airtronics' latest low-cost FM system, and it's a winner. It features 5-model memory, digital trim, subtrim, dual rate, endpoint adjustment, servo-reversing, digital battery-voltage display, a low-battery alarm and an easy-to-navigate menu screen. It also includes the high-quality receiver used in the top-of-the-line MB system, which itself sells for a sum that's close to the price of the entire MX-3 radio system. The key points are that it's a good radio with a great receiver for a very reasonable price.



Novak Rooster reversible ESC

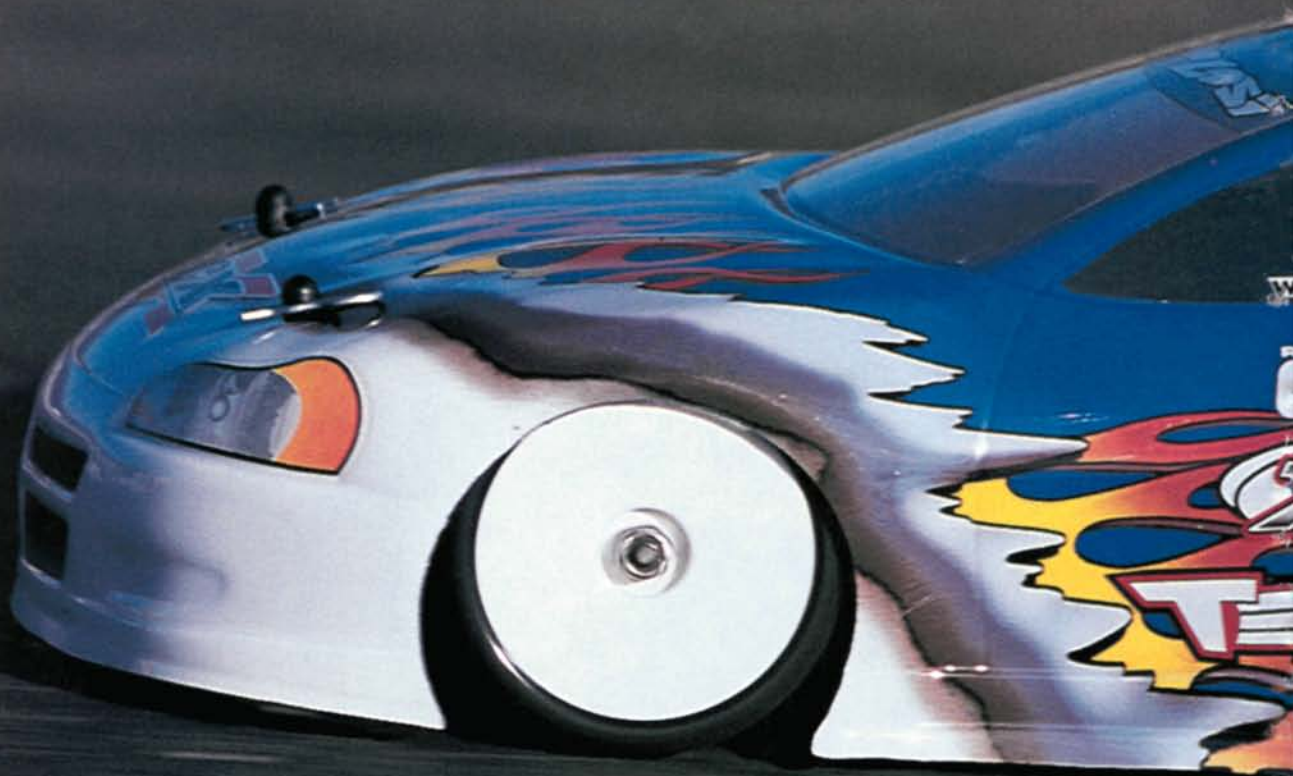
Team Orion 2400mAh Ni-Cd Rocket Pack

SOURCE GUIDE

TAMIYA AMERICA INC. (800) 826-4922; tamiyausa.com.
AIRTRONICS (714) 978-1895; airtronics.net.
PACTRA INC. distributed by Testor Corp. (815) 962-6654; testors.com.

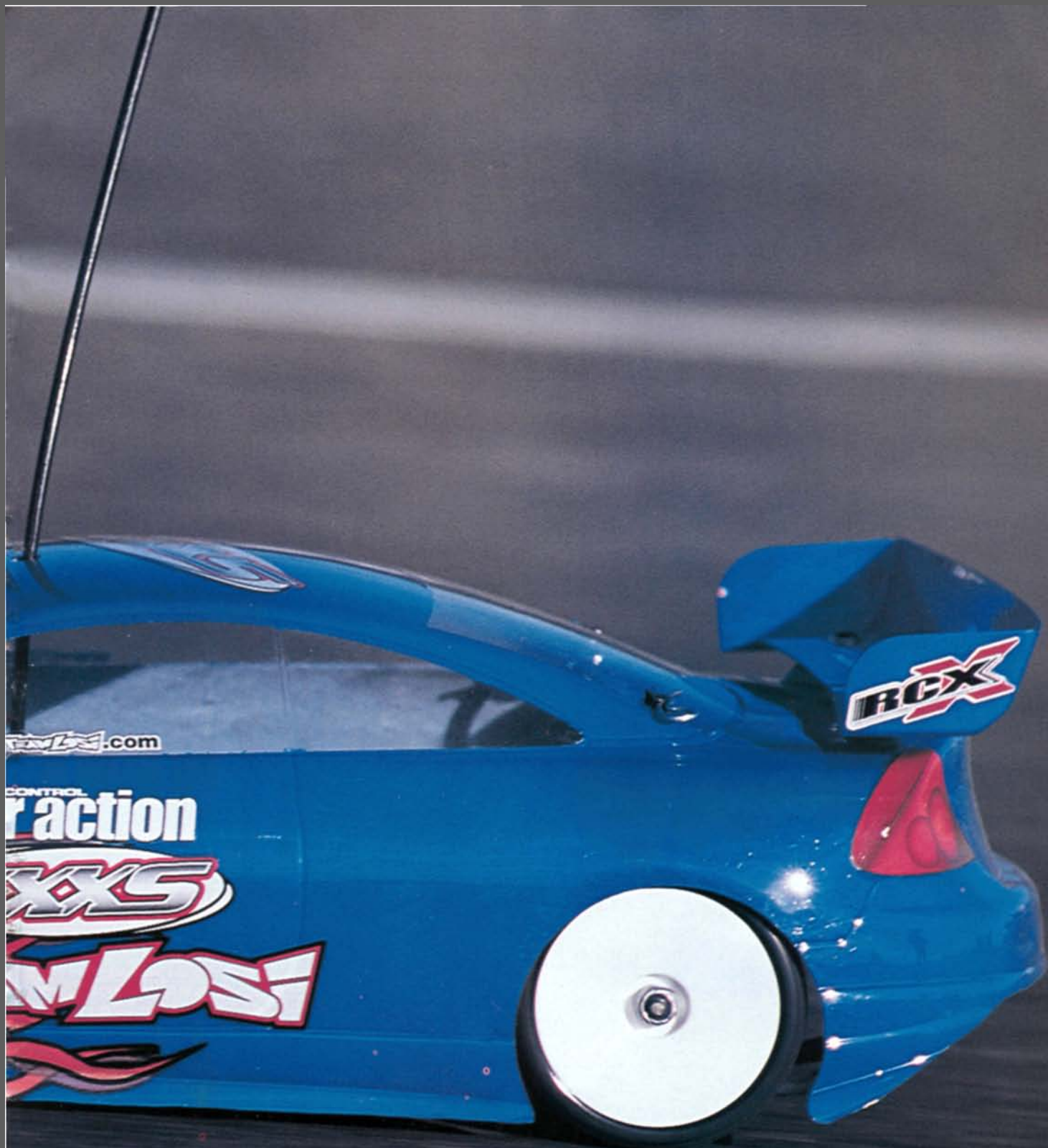
ALCLAD II (813) 643-1232; alclad2.com.
NOVAK ELECTRONICS INC. (949) 833-8873; teamnovak.com.
TEAM ORION INC. (714) 694-2812; team-orion.com.

Team Losi Triple-XS Sport RTR



IT WASN'T TOO LONG AGO that the idea of Team Losi getting into the ready-to-run scene was unthinkable; after all, everyone knows that Team Losi is all about high-performance competition car kits. But who says a ready-to-run car can't be a high-performance machine? Certainly not the Losi guys; they have gotten behind nitro-powered RTRs in a big way with the Triple-XNT Sport (which we named 2002 Truck of the Year), and are now looking for a piece of the RTR electric touring car action with the new Triple-XS Sport. The new car sticks close to the Losi RTR formula; it has all the important racing features of a kit Triple-XS, includes a JR Racing XR2 computer radio (no need to upgrade!), and the assembly is complete, right down to a finished and trimmed body and glued tires. What's the catch? I hope there isn't one, but I'll run the wheels off the Triple-XS Sport to find out.

PHOTOS BY WALTER ADAM



***100% RACIN' STUFF,
READY TO RUN!***

track test

TEAM LOSI TRIPLE-XS SPORT RTR



Here's a good shot of the motor cam; by loosening the two screws that pinch the cam against the chassis, the motor plate can be rotated to adjust the gear mesh.

DATA CENTER

VEHICLE TYPE Ready-to-run 4WD electric touring car

BEST BUYER Any performance-minded RC fan, especially those with racing aspirations

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Excellent

Parts fit and finish Excellent

Durability Good (very good, if the body paint hadn't chipped easily)

Overall performance Excellent

SPECIFICATIONS

MODEL Triple-XS Sport RTR

MANUFACTURER Team Losi

DISTRIBUTED BY Horizon Hobby

SCALE 1/10

PRICE \$280 (varies with dealer)

DIMENSIONS

Wheelbase 10 in. (256mm)

Width 7.4 in. (187mm)

WEIGHT

Total, as tested 51 oz. (1.455g)

CHASSIS

Type Molded semi-tub

Material Plastic

DRIVE TRAIN

Type Single-belt

Primary 24-tooth pinion/88-tooth spur gear

Transmission ratio 1.83:1

Final drive ratio 6.7:1

Drive shafts MIP CVD

Differentials Ball type with plastic outdrives

Bearing type Metal-shielded ball bearings

SUSPENSION

Type Lower H-arm with steel-turn-buckle camber links

Shocks Hard-anodized aluminum body, bottom-loaded sealed cartridge

WHEELS

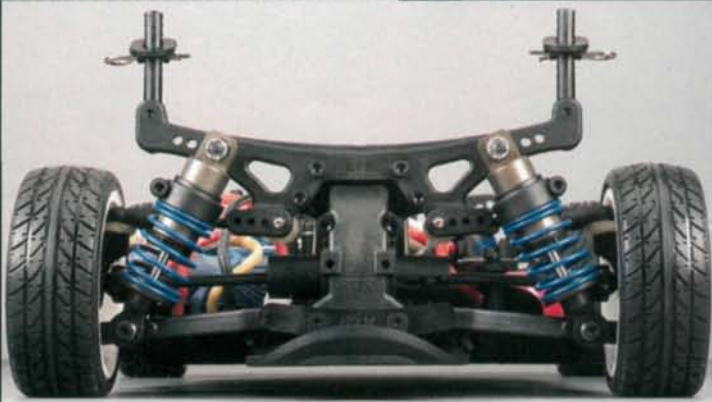
Type One-piece plastic dish, with 12mm drive hex

TIRES

Type Treaded street design with foam inserts; glued to wheels

... THE TRIPLE-XS
BUILT STRAIGHT AND
STAYS STRAIGHT ...

Left: chunky steel turnbuckles make camber and toe changes easy. Note that the upper ball stud is also a kingpin and that foam donuts are used to keep dirt out of the ball cups. Right: Losi has some of the best shocks in the biz. You can set ride height by moving the shocks' preload collars or by adjusting droop screws in the suspension arms.



KIT FEATURES

CHASSIS. If you had to build the Triple-XS yourself, you would have noticed that the chassis has fewer bolt-on parts than most other tourers. By incorporating the belt tunnel, front and rear pulley housings and shock-tower bulkheads into a single molded part, the Triple-XS builds straight and stays straight, so a crash is less likely to "tweak" the car and alter its balanced handling. Most Sport owners will flip over the included battery hold-down that accommodates a stick pack (as I did), but if you prefer to



Smoooooth, baby. Slots for the battery and motor help the Sport maintain a low center of gravity, and front and rear bumpers protect the chassis.

use a "side-by-side" pack, the chassis is slotted to accept the cells, and the battery strap is scalloped to hold them tightly.

The chassis' belt tunnel is its most prominent feature. It's capped by a Lexan cover on top and a plastic plate below, and the motor mount is incorporated in the side of the tunnel. The motor is mounted on an aluminum cam plate; by rotating the plate, you can adjust the gear mesh. A sighting window makes it easy to see the mesh, and a rubber plug seals the window.

DRIVE TRAIN. Here's where you'll find the Triple-XS's signature feature, its single-belt drive train. The serpentine belt is spun directly by the spur gear, which is molded with the main drive pulley as a single part. The belt wraps around an adjustable tensioner and then makes the trip to the front and rear ball differentials, which use large-diameter pulleys to reduce the tension required to prevent belt slippage; this contributes greatly to the

system's low-friction feel. The diffs are externally adjustable, so you can alter their tightness without removing them from the chassis. When you do need to take them out, you can easily access them by removing the "caps" on the ends of the chassis' belt tunnel. Removing six screws gets the job done.

Steel dogbones would be an acceptable cost-saving measure for an RTR sedan but not for a Losi RTR sedan; that's why you'll find genuine MIP Constant Velocity Drive Shafts (CVDs) spinning the wheels at both ends. As any RC guy will tell you, MIP's CVDs operate without chatter and with nearly zero backlash, and they last far longer than dogbones. Almost forgot! All the rotating parts spin on metal-shielded ball bearings.

SUSPENSION AND STEERING. Team Losi's hard-anodized aluminum shocks are well known for their plush damping and easy assembly. In this case, the ease of assembly is more of a benefit to the guys on the assembly line, but when it's time to rebuild the shocks, you'll appreciate how easy it is to fill and bleed them.

The shocks are squeezed by H-arms that include droop-screw pads and are ready to accept optional swaybars. C-carriers hold the steering arms with combination kingpin/ball studs, and steel turnbuckles are used for all the linkages, so you can adjust camber and toe without disassembly. The shock towers give additional adjustment opportunities; there are four holes for each shock and camber link.

BODY, WHEELS AND TIRES. Losi does all the gluing for you, so the Triple-XS Sport's treaded rubber tires and foam inserts will stay stuck on their dish wheels. Racers prefer dish wheels, but I'd like to see something sportier looking such as a set of 5-spokes. No problem there; since the Sport uses industry-standard 12mm hex hubs, any aftermarket wheels will fit.

The Sport's Stratus-style body combines screen-printed graphics of tear-away paint and flames with a sprayed-on primary color. In addition to the indigo blue of my tester, Losi offers the Sport in "graphite" (an anthracite gray) and "cherry" (bright red). By spraying on the main color, Losi can mask the windows so they stay clear; it's a much better look than blacked-out windows. A full decal sheet is supplied, and the decals are precut; just peel and stick.

ELECTRONICS & ACCESSORIES

INCLUDED



JR RACING XR2 TRANSMITTER AND R125 RECEIVER. JR's XR2 is a much better system than the bare-bones gear supplied with most RTRs. It uses an LCD display to indicate its settings, which include adjustable endpoints and subtrim for both channels, steering dual rate and 2-model memory. All the trim switches are digital and grip switches are provided for as-you-drive adjustment of the dual-rate and brake-throw settings. It will be a long time before you'll feel a need to upgrade to another radio—if ever.

JR RACING Z270 STANDARD RACE STEERING SERVO. "Standard" type servos such as JR's Z270 are good for about 40 oz.-in. of torque, and that's all you'll ever need for the Triple-XS Sport. There are faster and more powerful servos out there, but guess what? They're expensive. The Z270 is well matched to its mission.

GM RACING V3R REVERSING SPEED CONTROL. GM's compact speedo doesn't require any setup, takes up very little room on the chassis and has replaceable power wires. Most important, it functions well; the throttle feels punchy, and the brakes and reverse are fully proportional. The first swing of up-trigger from neutral activates the brake and only the brake; you can hold the trigger up all day and reverse will never engage, but as soon as you return the trigger to neutral, the next application of up-trigger will engage reverse. It's a good system; you can still quickly access reverse for stunt driving, but hard braking will never accidentally engage reverse.

SPEED 19 MOTOR. Instead of the usual 27-turn stocker, the Sport is motivated by a 19-turn motor. With the exception of faster wind, the Speed 19 is a conventional stock-type design. The endbell is fixed, and the armature spins on bushings.

TOOLS AND MANUALS. A stamped turnbuckle wrench is supplied, along with "L" wrenches for the Sport's hex fasteners. The tool packet also includes droop screws for the suspension arms. To help you set the droop (and all the Sport's other adjustable chassis and suspension features), Losi includes a complete assembly manual and a photo-illustrated getting-started guide with troubleshooting tips and ESC setup notes. In short, you have everything you need to tune, maintain and rebuild the car. Go ahead; take the whole thing apart!

YOU'LL NEED

- 6-cell stick pack or "side-by-side" pack
- Charger
- 8 AA batteries for the transmitter

FACTORY OPTIONS

GRAPHITE PARTS

- Suspension arms (F/R)—item no. A-9737/A-9839
- Shock towers (F/R)—A-9744/A-9844
- Front spindles and carriers—A-9747
- Rear hubs—A-9847
- Main chassis—A-9918
- 5-spoke sedan wheels—A-7081
- MIP aluminum CVDs (pair)—A-9929
- Certified Shock Fluid 6-pack (50 to 100WT)—A-5241

*Partial list; more options are available.

PERFORMANCE

The Triple-XS platform is a proven winner at all levels of competition, and the Sport model is ready to get your racing career started, if that's your goal. But most Sports are likely to spend their time banging doors in parking-lot grudge matches, so I tested the car with that type of abuse in mind.

Like the Triple-XS kit cars I've driven before, the Sport accelerates crisply and quietly, with barely a whisper from the belt drive. Pebbles, sand and other parking-lot debris are to be avoided at all costs when you run a car with exposed drive belts, but you can power-slide the Triple-XS Sport through sandy patches without fear, and a spin into the "marbles" is no cause for alarm because the belt system is fully enclosed. The rest of the car seems as durable as the drive train, based on a few curbside skirmishes, but the body shed paint after a few hits; the blue paint stayed stuck, but the white on the nose flaked. I'll touch it up with a brush.

While the pack was still freshly peaked, I made a few runs for the radar and clocked a best pass of 21mph—very speedy for an electric RTR and more than enough to keep parking-lot players happy. The Sport's V3R speed control performed very well, with punchy acceleration and responsive brake control. I especially like the reverse system; it's easy to double-pump the trigger to do "Rockfords" and other spinout moves, but I never had to worry about accidentally hitting reverse when trying to get around corner dots in a hurry.

LIKES

- Ready for high-performance driving (or racing) straight out of the box.
- No hurry to upgrade; Includes computer radio, ESC, ball bearings and aluminum shocks.
- Attractive painted body and graphics.
- World-class handling.

That brings me to handling, which is the Triple-XS Sport's forte. You can take any touring car and make it go fast with a hot motor, but if your car isn't a handler, there isn't much you can do to fix it. This car doesn't need any fixing; it rolls aggressively into the corners, with just a little drift as it rotates through the turn (remember, it isn't on racing rubber). Once past the apex, the car digs in as the trigger meets the grip, and the Sport moves out as quickly as its Speed 19 motor can unwind. It's easy to drive fast with no surprises. If you want to experiment with stickier rubber and hotter motors (the included ESC can handle winds down to 15 turns), the Sport is ready for you.

THE VERDICT

You'll pay a little more for a Triple-XS Sport, but you'll pay a lot more if you buy another RTR tourer and upgrade it to match the Sport's specs. Factor in aluminum shocks, a computer radio, an electronic speed control and ball bearings, and suddenly, the extra bucks you'll need to buy the Losi seem insignificant. Even if you just plan to play in a parking lot, you'll appreciate the extra goodies, and for wannabe racers, the Sport's extras are gold. It's a good-looking, great-performing RTR that's fast from the get-go and has more track savvy than most of us will ever need.

DISLIKES

- White paint chips easily.



... THE SPORT ACCELERATES CRISPPLY AND QUIETLY, WITH BARELY A WHISPER FROM THE BELT DRIVE.

Dynamite Dyna-Fun 2000 stick pack

This six-pack of 2000mAh cells delivers plenty of punch and run-time for parking-lot play without busting the budget. Flexible silicone wire, an industry-standard Tamiya-type plug and a tight heat-shrink job make the Dyna-Fun pack a good choice for fun-time electric action.



SOURCE GUIDE

DYNAMITE distributed by Horizon Hobby.

GM RACING distributed by Horizon Hobby.

HORIZON HOBBY INC. (800) 338-4639; horizonhobby.com.

TEAM LOSI distributed by Horizon Hobby; teamlosi.com.

THE COMPETITION

	DRIVE TRAIN	CHASSIS	DIFFERENTIALS	SHOCKS	BEARING TYPE	MOTOR	TRANSMITTER	PRICE**	REVIEWED
Associated TC3 RTR	Shaft	Plastic	Ball	Aluminum	Sealed ball	19-turn	Ace Jaguar	\$250	Touring Cars 2002
CEN GX-1	Belt/gearbox	Fiberglass	Gear	Aluminum	Sealed ball	27-turn	CEN Mirage II	\$190	Touring Cars 2002
MRC STR-4 RTR	Shaft	Plastic	Gear	Plastic	Bushings	27-turn	Hitec Lynx sport	\$220	Touring Cars 2002
Team Losi XXX-S Sport	Single belt	Plastic	Ball	Plastic	Shielded ball	19-turn	JR Racing XR2	\$280	4/03
Tamiya TL01 XB	Shaft	Plastic	Gear	Plastic	Bushings	27-turn	Tamiya AdSpec	\$210	Touring Cars 2002
Traxxas 4-Tec RTR	Dual belt	Plastic	Ball	Plastic	Shielded ball	20-turn	Traxxas TQ	\$190	Touring Cars 2002

*Category is too large to list all competitive vehicles. **Price varies with dealer.

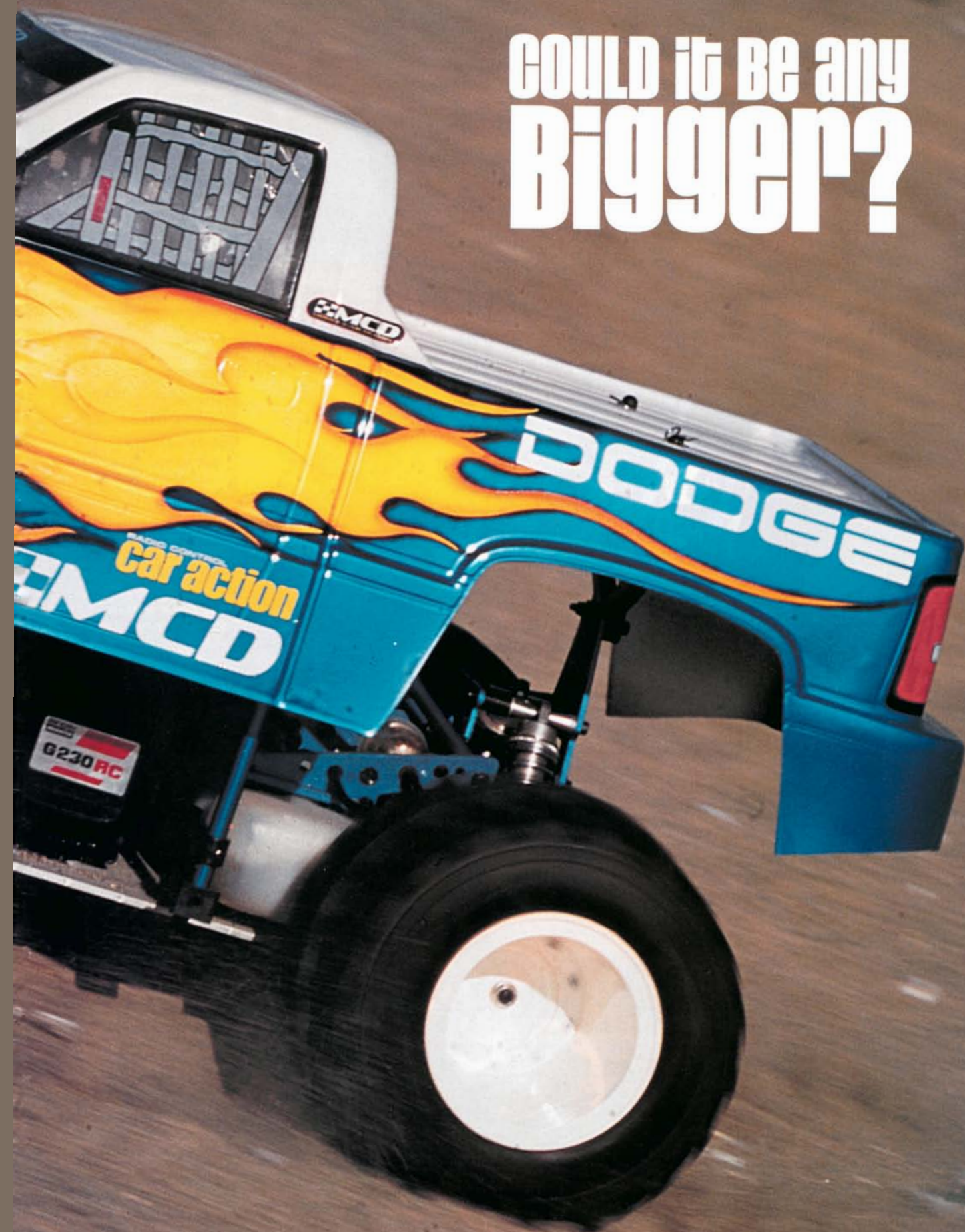


MCD Monster Truck

IT'S HARD TO KEEP UP WITH WHAT'S NEW on the nitro truck market these days; turn around and ... there's another one! And they're getting bigger and bigger! The MCD guys decided not to mess around with $\frac{1}{10}$ and $\frac{1}{8}$ scale; instead, they went right to $\frac{1}{5}$ scale. The MCD "Monster Truck" (creative name, eh?) dwarfs all others with its bathtub-size body, 8-inch tires, and 23cc gas-burning engine. Who could pass up a chance to drive this behemoth?

PHOTOS BY PETE HALL

COULD it be any
Bigger?





AN ALUMINUM-TUBE ROLL CAGE PROTECTS EVERYTHING THAT IS BOLTED TO THE CHASSIS

DATA CENTER

VEHICLE TYPE 4WD gas-powered monster truck
BEST BUYER Experienced hobbyist who wants the biggest and baddest monster truck
KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Satisfactory
Parts fit/finish Very good
Durability Good
Overall performance Very good

SPECIFICATIONS

MANUFACTURER MCD
MODEL Monster truck 4WD
DISTRIBUTED BY Brooklyn Hobbies
SCALE 1/5
PRICE \$1,699

DIMENSIONS
Wheelbase 20 in. (559mm)
Width 22 in. (508mm)

WEIGHT
Total, as tested 28.25 lb. (12.8kg)

CHASSIS
Type Plate
Material Aluminum

DRIVE TRAIN
Type Multi-gear transmission
Primary 39-tooth spur gear/24-tooth pinion
Drive shafts Dogbone
Differential Gear type
Bearing type Metal-shielded ball bearings

SUSPENSION
Type Double-wishbone
Shocks Aluminum, threaded-body, oil-filled

WHEELS
Type Multi-piece

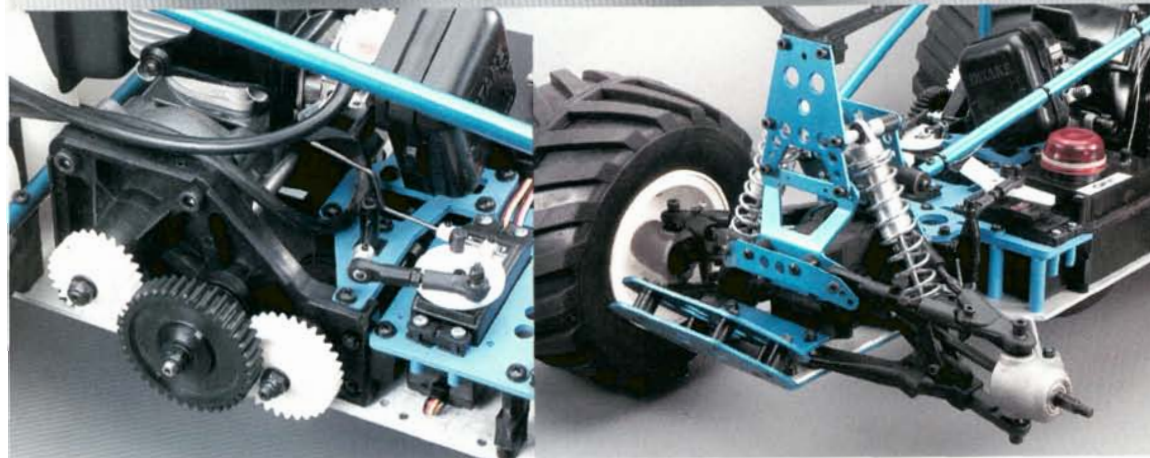
TIRES
Type 8x5 in. Terra tread

ENGINE AND ACCESSORIES
Engine Zenoah G23
Carburetor 2-needle rotary
Muffler Canister
Starter Pull-starter
Tank 650cc

YOU'LL NEED

- 2-stroke gas/oil mix
- 2-channel radio system
- 3, quarter-scale servos
- 5-cell, sub-C receiver pack
- Lots of polycarbonate-compatible paint

Far left: the transmission gears are fully exposed to the elements. If they have to be exposed, maybe metal gears would have been a better choice. Near left: The suspension is highly adjustable; you can adjust camber and change the links' mounting locations. Want to change the truck's ride height? The threaded shock collars let you make quick work of that job.



KIT FEATURES

CHASSIS. A 4mm-thick aluminum plate runs the entire length of the truck, and the screw holes are counter-sunk on the bottom so that the screw heads don't scrape the ground. A large double bumper protects the front end. The plastic-composite radio tray is nestled in the front of the chassis and has many supports to keep it rigid. The sealed receiver/battery box is on the left of the radio tray, and it's a little cramped; the large Ni-Cds required to run the radio don't fit too well. An aluminum-tube roll cage protects everything that is bolted to the chassis, so if you roll the big truck over—no worries! The cage also stiffens the chassis.

DRIVE TRAIN. As the engine spools up, the two clutch shoes on the flywheel engage the large-diameter clutch bell. At the end of the clutch bell is a 24-tooth pinion gear that meshes with a stepped countergear, which, in turn, mates with another gear that is attached to a steel shaft. All these gears are not protected from the elements, and that's disappointing considering that this truck will see a lot of dirt time.

Three brake discs on the opposite side of the lower gear stop the truck. Two bevel gears—one at the end of the shaft and one in the middle of the chassis—change the direction of the drive train.

Heavy-duty steel shafts spin bevel gears on the front and rear gear differentials. Large steel dogbones connect the diffs to the wheels, which fit over a square drive hob.

SUSPENSION AND STEERING. MCD's monster has 4-wheel double-wishbone-type suspension, and 5mm turnbuckles that allow you to adjust camber. Three positions are available for the inside of the upper arms. The mounting screws are supported on each side of the pivot ball to prevent them from bending. The inboard ends of the lower arms pivot on steel balls attached to the chassis. Aluminum oil-filled shocks damp the truck's ride, and the threaded shock bodies allow ride height to be finely adjusted. Rod ends attach the upper and lower suspension arms to the cast-aluminum hubs, and two quarter-scale servos steer the front wheels. Each servo pushes and pulls its own bellcrank, and the bellcranks are connected to each other with one link. Adjustable turnbuckles make it easy to set front toe.

ENGINE AND ACCESSORIES. The Zenoah 23cc air-cooled engine features a heavy-duty pull-starter, a primer bulb, a throttle-return spring, high- and low-speed needles, a canister-type muffler and a large air filter. There's a 650cc fuel tank, and an inline fuel filter keeps the fuel that enters the carb clean.

The Zenoah engine burns gasoline, not nitro fuel, so you must take extra safety precautions. First and foremost, you need a container designed to store and dispense gasoline. Do NOT use an RC fuel bottle, and NEVER store gasoline indoors.

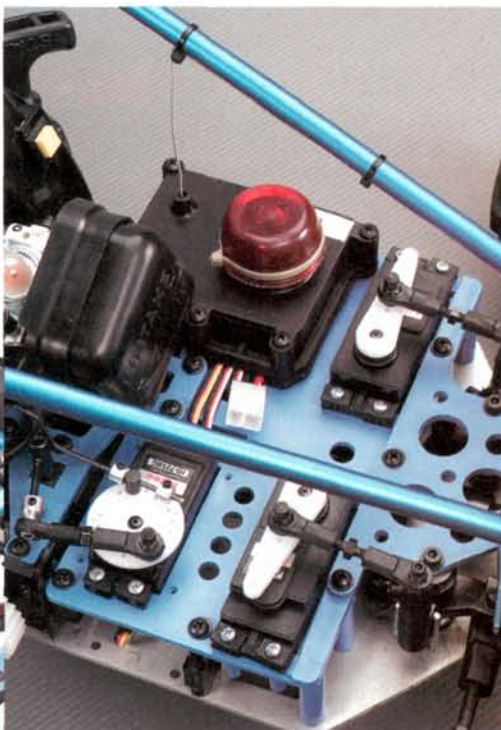
You'll also have to prepare the gasoline for use by adding a special oil to it. Your hardware store or lawn and garden center will hook you up with "pre-mix oil" that you'll pour into the gasoline. For the Zenoah engine, a 40:1 ratio is best: that's 40 parts fuel to 1 part oil (the oil container will have



Here's the MCD with my Ripper-converted Clod, which is a big machine in its own right. Make no mistake: if you get a 1/5 scale truck, you will have the biggest rig on the block.

details on how to get the right mixture). Mix the fuel in your gas can—not in the truck's fuel tank. It's a little extra hassle, but look on the bright side: since the engine has electronic spark ignition, you'll never have to worry about glow plugs!

BODY WHEELS AND TIRES. A big truck needs a big body, and MCD's Monster Truck comes with a nicely detailed Dodge Ram body (you had better have a lot of paint on hand for this sucker). Before I could even think about color schemes, Bob Hastings snatched the big polycarbonate shell out of my office and locked himself in our paint studio. (The Dodge is the subject of his "Body Shop" column this month, so be sure to check it out.) The body is protected by white overspray film, and it comes with plenty of detail stickers. The truck rolls on 7³/₄-inch-diameter Terra-tread tires on two-piece bead-lock rims (no glue!). The rims are not vented, so the air trapped inside supports the tires.



Above: two quarter-scale servos steer the large front wheels, and one quarter-scale servo has plenty of torque to work the brakes and throttle. The dual bellcranks are connected by a heavy-duty link under the upper plate.

Left: the Zenoah G23 gets the big truck moving at a respectable speed. It's already very popular among the large-scale-boat guys, and hop-ups are available for it.

PERFORMANCE



As with any 1/8-scale vehicle, it was exciting to fire up the engine for the first time. I turned on the radio and receiver and made sure that all the controls worked properly before I started the engine. You definitely don't want anything this big to run away from you!

After my final checks, I fired up the engine; it took only a couple of tugs to get it running. I drove the truck around at a low speed to get the engine up to operating temperature. I had to make a few minor carb adjustments to get the engine to run well; after doing that, I didn't have any trouble at all.

Despite its dual quarter-scale servos, the MCD monster won't out-corner any of the RC vehicles you're used to seeing; it's simply too massive to turn on a dime, and you'll quickly learn to give it plenty of turning room. As long as you keep that in mind, you'll be able to get the truck where you want it to go. And if you forget about its large turning radius, you'll probably be able to get it to roll up and over anything in its way. The transmission is geared for torque, and the Zenoah gas engine supplies plenty of grunt on its own. As a combination, they give the monster enough power to spin its go-kart-size wheels up and over some truly gnarly terrain. Surprisingly, top speed is very good, too, especially for a vehicle of this size. You'll need a lot of room to see 40mph, but I think it can get up there!

I would never end a test session without getting daylight under a truck, so I set up a pair of test ramps for Evel Knievel action. At nearly 30 pounds, the MCD puts a much greater strain on its parts than any 1/10- or 1/8-scale car, but it easily took jump after jump. It occupies a much greater chunk of airspace, but piloting the truck when it was airborne wasn't any different from launching any other RC machine. I think the ground shook a little when it landed, though.

THE VERDICT

I had a great time testing this truck; I think I just fell in love. The engine seems to run forever on a tank of gas, and I didn't have to blip the throttle or check the engine temp constantly as I do with the nitro engines I run. If you do decide to pick up one of these trucks, be sure you have enough space to store it!

I FIRED UP THE ENGINE; IT TOOK ONLY A COUPLE OF TUGS TO GET IT RUNNING

LIKES

- Fully adjustable suspension.
- Aluminum-tube roll cage.
- Long run time.

DISLIKES

- The gears on the side of the chassis are not protected.
- The radio box is a little cramped.

KO Propo Mars EX-1 Radio

You need to keep a big truck like this under control at all times, and the Mars

EX-1 radio takes care of that job. It has all the bells and whistles, including an offset steering wheel, a dot-matrix display, throttle and steering trims and ABS.

Additional items used

Hitec HS-805BB steering servos

Hitec HS-705MG throttle/brake servo



TEST GEAR

SOURCE GUIDE

HITEC RCD INC. (858) 748-6948; hitecrad.com.

KO PROPO USA INC. (310) 532-9355; kopropo.com.

MCD distributed by Brooklyn Hobbies (718) 951-2500, brooklynhobbies.com, teammcd.com.

DuraTrax Delphi Indy

WITH THEIR SLEEK BODYWORK

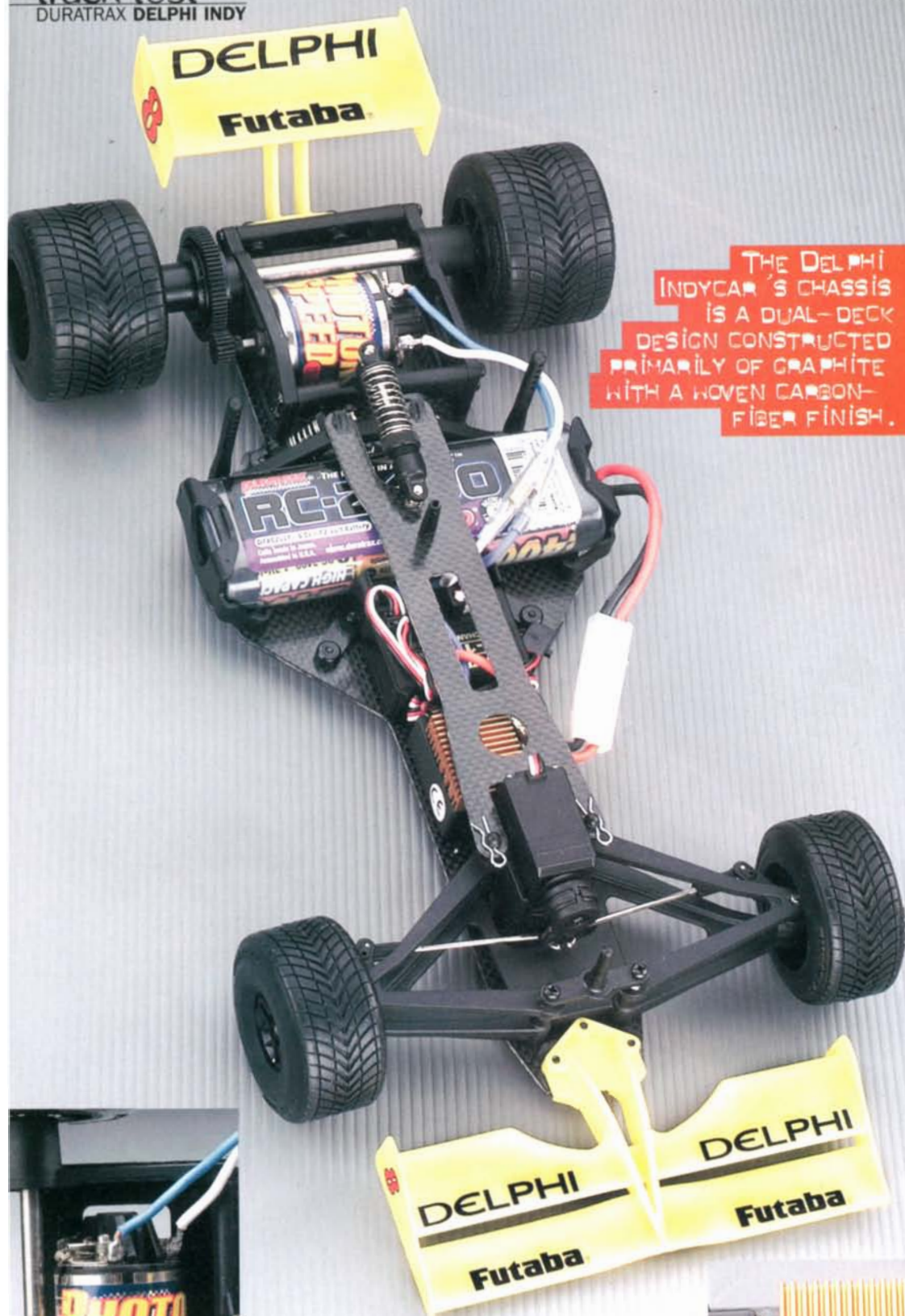
and extreme speeds on both ovals and winding road-courses, few racing machines can match the excitement of Indycars. Fans will immediately recognize the bright red-and-yellow car on these pages as Kelley Racing's Delphi/Futaba-sponsored racer driven by Scott Sharp. With one of the few direct RC tie-ins to full-size car racing, DuraTrax recognizes Futaba's sponsorship with its new Delphi Indycar—an RTR replica of the full-size racer.

This 1/10-scale RC version has some of the features of its full-size counterpart, including the extensive use of carbon fiber and a wicked horsepower-to-weight ratio! Let's lift the body for a closer look.





BRICKYARD BURNER



THE DELPHI INDYCAR'S CHASSIS IS A DUAL-DECK DESIGN CONSTRUCTED PRIMARILY OF GRAPHITE WITH A WOVEN CARBON-FIBER FINISH.

DATA CENTER

VEHICLE TYPE Electric open-wheel pan car
BEST BUYER Electric RC enthusiasts
KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Very good
Parts fit and finish Good
Durability Very good
Overall performance Good

SPECIFICATIONS

MANUFACTURER DuraTrax
MODEL Delphi Indycar
DISTRIBUTED BY Great Planes Model Distributors

SCALE 1/10
PRICE \$185
Varies with dealer

DIMENSIONS
Wheelbase 10.6 in. (270mm)
Width 8 in. (205mm)

WEIGHT
Total, as tested (without battery)
28 oz. (795g)

CHASSIS
Type Double-deck plate with rear T-plate
Material 3mm and 1.5mm carbon-graphite laminate

DRIVE TRAIN
Type Direct-drive
Primary 20T pinion gear/72T spur gear
Transmission ratio 1:1
Final drive ratio 3.6:1
Differentials Open bevel gear
Bearing type Metal-shielded ball bearings

SUSPENSION
Type (F/R) Sliding kingpin/T-plate
Shocks Three friction coil-overs with threaded adjustment collars

WHEELS
Type One-piece, split 6-spoke

TIRES
Type (F/R) Treaded with foam inserts; 30mm/44mm wide



Left: the Photon Speed is the same powerplant as is used in the Evader series of off-road vehicles. The 20x1 motor in such a light chassis easily torches the rear tires. Finesse is required when you roll on the throttle. Right: with the upper deck removed, you can clearly see the included electronics. The reversing ESC has large, cooling heat sinks and a convenient pushbutton setup. The receiver and ESC are both made for DuraTrax by Futaba—the full-size racecar's sponsor.



KIT FEATURES

CHASSIS. The Delphi Indycar's chassis is a dual-deck design constructed primarily of graphite with a woven carbon-fiber finish. It has upper and lower decks, but the chassis is essentially a simple pan-car design. The lower deck consists of a main plate made of 3mm graphite stock and a 1.5mm rear T-plate. The upper deck (also 1.5mm graphite) stiffens the main chassis and serves as a mounting place for the rear pod suspension. The upper deck is hinged at the rear and held in place at the front with a pair of body clips. The upper deck swings up to allow a 6-cell battery pack to be slid into the lower deck's battery tray. If you move the electronic components to the chassis' wings, you'll be able to mount the battery pack in line with the chassis for better handling in high-traction conditions.

DRIVE TRAIN. Like the real Indycars, the Delphi Indycar is rear-wheel drive (RWD). Combine that with direct drive (motor pinion driving the spur gear, which is attached to the rear axle), and you have a very efficient drive train that has very little loss to friction. Being like a pan car's, the differential is integrated into the rear axle, which is supported in the rear pod by a pair of 6x12mm bearings. The differential is an open 4-gear unit, so its inner teeth are exposed to dirt and debris. The diff's action may be adjusted by tightening the locknut. The gears are standard 48-pitch, so alternative pinions are readily available to suit your needs.



SUSPENSION AND STEERING. Up front, the steering knuckles ride on sliding kingpins that are supported by small springs; an E-clip underneath the steering assembly keeps everything fastened together. The lower A-arm is stationary and acts as a guide for the kingpin's up-and-down sliding action; the upper arm pivots on the inner links. The suspension arms are made of DuraTrax's Stress-Tech material; this has some built-in flexibility,

and it will "give" in a crash rather than break. If you do manage to break a Stress-Tech component during the first year that you own your Delphi Indycar, DuraTrax will replace the part free of charge.

In the rear, a thin T-plate is secured to the main chassis by three screws. The center screw is actually attached to a bridge that, when adjusted, tightens or loosens the plate's lateral twisting action. Attached to the

T-plate is the motor pod; this consists of the motor mount and a Stress-Tech frame that acts as an axle support. Three spring dampers with threaded preload collars support the rear pod and T-plate; although they are just friction-type shocks, they do support the pod and damp its action. The threaded collars make it easy to adjust the rear suspension.

The steering servo is secured with double-sided tape to an upright mount on the chassis' front end; a plastic servo-saver comes installed on the standard servo, and the steering rods are connected directly to the steering knuckles. Ball cups on both of the steering rod's threaded ends allow you to make toe adjustments, but to do this, you have to disconnect the ball cup.



Above: the pan-car-like front suspension features steering knuckles that ride on sliding kingpins; the lower A-arm doesn't move but acts as a guide for the kingpin's up-and-down sliding action; and the upper arm pivots on the inner links. **Left:** the differential is an open 4-gear unit that can be adjusted by using the right wheel's mounting locknut. This shows one of the T-plate's threaded-body shocks. The friction damper helps to control rear-pod action.

BODY, WHEELS AND TIRES. The polycarbonate body comes trimmed (including the mounting holes) and painted in red with a silver backing coat. DuraTrax makes it even easier to get on the road by die-cutting the decals for you. Treaded radials on black, split, 6-spoke wheels adorn all corners. The Delphi's wheels are compatible with Tamiya's F103 wheels, although you might need a couple of spacers to install the rear wheels. The front and rear wings are molded of nylon and are designed to take a beating. When the decals and helmet are in place, you'll see that this replica of Scott Sharp's ride is a faithful re-creation.

ELECTRONICS & ACCESSORIES

DURATRAX 2-CHANNEL RADIO BY FUTABA. Which other company would you expect to make the radio for this RTR kit? This is the solid, 2-channel AM radio that DuraTrax includes in most of its RTR kits. It has all the features needed in an entry-level rig, including servo-reversing, steering-rate adjustment, battery-level indicator and a charging jack for Ni-Cd batteries.

DURATRAX SX100 STEERING SERVO. This standard servo has 44 oz.-in. of torque and a 0.23 second/60 degrees transit time. It has more than enough torque to steer the Indycar, and because RWD car steering tends to be a little sensitive, this servo is a real help.

DURATRAX SPRINT ESC. With forward, reverse, brakes and the ability to handle 7 cells and motors down to 20 turns, this little workhorse is perfectly suited to most "fun" cars that won't see racing duty beyond the stock classes. The ESC has the one-button setup that's always appreciated.

DURATRAX PHOTON SPEED 20X1 MODIFIED BUSHING MOTOR. This motor has proven its worth many times in the hands of Evader owners everywhere; it's durable and it's fast. With bushings and fixed timing, it is easy to maintain, but with 7 fewer turns of wire around the armature than a standard stocker, it's nice and quick, too.

YOU'LL NEED

- Charger
- 6-cell stick pack

FACTORY OPTIONS

- Aluminum heat-sink motor mount (blue/purple)—item nos. DTXC7982/DTXC7983
- Aluminum oil-filled main shock—DTXC8996
- Front spring set (hard or soft)—DTXC9143
- Spring set for aluminum main shock—DTXC9144
- Turnbuckle tie rods w/ends—DTXC9749
- Wing set (blue/black)—DTXC9773/DTXC9774
- Aluminum rear axle—DTXC6175
- Ball differential—DTXC6190



PERFORMANCE



IF ANYTHING, THE 20-TURN PHOTON MOTOR PROVIDED TOO MUCH HORSEPOWER ... TOP SPEED WAS INCREDIBLE

First, I have to tell you that driving an RC F1 or Indycar requires finesse and takes some getting used to. They're narrow and usually grossly over-powered—essentially, darts on wheels. The DuraTrax Delphi Indycar holds its battery setup across the chassis. That gives a weight bias towards the rear end, and that's good, since cars such as this are notorious for spinning out. After adjusting the side shocks as described in the manual to eliminate chassis tweak as much as possible, I started around the test track. I quickly learned that the Indy's fairly hard-compound treaded tires didn't go very well with the slightly dusty track.

I fiddled with the T-plate adjustment screw and the center shock preload to improve traction. If anything, the 20-turn Photon motor provided too much horsepower for the tires and the track conditions; top speed was incredible, but getting the power to the ground was difficult. Pushing the chassis to its limits led to a few crashes, but I'm pleased to report that nothing broke. I did, however, mess up the gear mesh when the force of a crash caused the motor to slide in its mount. The Stress-Tech rear pod and T-plate assembly will flex instead of breaking, and that's a good thing, but the T-plate's alignment with the chassis is critical to making the car track consistently. If your Delphi takes a few hard hits, check and straighten the T-plate and rear pod frame as needed.

LIKES

- Just about everything you need, right down to the transmitter alkalines, is included.
- Lots of room on the chassis to play around with electronics positioning.
- Graphite chassis plates.

Although I clearly didn't have enough traction to warrant switching to the inline battery setup, I gave it a try in the interests of doing a thorough test. The car didn't transfer its weight from side to side as much while cornering, but with so much more of the battery pack's weight now toward the front, the car swapped ends almost without warning. When traction is good, the Delphi should steer very aggressively with the inline setup, but for most tracks (and any type of play), the standard battery configuration is best (and that's no doubt why DuraTrax made the car with this setup).

I never had to fiddle with the radio gear; the Futaba-built transmitter, receiver and servo operated completely reliably, and the DuraTrax Sprint ESC gave smooth, precise throttle control. It also has proportional brake control, and "soft" reverse engagement protects the Delphi's gears.

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THE VERDICT

The DuraTrax Delphi Indycar has a lot of potential for experienced RC drivers and anyone else who wants to take on the challenge of a narrow RWD chassis. The RTR package is great and the car is certainly fast.

Its graphite chassis, spacious chassis layout, respectable electronics and motor and Stress-Tech parts guarantee that the Delphi Indycar is very good value.

DISLIKES

- Plastic servo-saver is weak.
- The graphite chassis parts have rough edges.
- Hard tire compound.

DuraTrax 2400mAh & 3000mAh 6-cell packs

Keeping it in the family, I used DuraTrax's Sanyo RC2400 stick and Panasonic 3000 packs. The installed Tamiya connectors made installation a no-brainer, and the cells were good for at least 10 and 15 minutes of run time, respectively. Item no. DTXC2081.



DuraTrax 3000 pack

SOURCE GUIDE

DURATRAX distributed by Great Planes Model Distributors (800) 682-8948; greatplanes.com.

FUTABA distributed exclusively by Hobbico/Great Planes Model Distributors Co. (800) 637-7660; futaba-rc.com.

Even the most casual electric racers understand that getting a maximum charge into the best batteries you can afford is critical to success on the track, but there's more to the battery game than getting the juice in. Today's nickel-metal-hydrate cells require "smarter" chargers than the peak-detecting units that served us well with Ni-Cd batteries. And, as competition gets ever closer, knowledge truly becomes power; when you're able to arm yourself with exact data about your pack's capacity and capabilities, you'll be that much closer to the winners' circle. We've gathered 15 "pro" chargers that can give you the edge. Which one will land in your pit box?

by the RC Car Action team

PRO CHARGER GUIDE

15 HOT BOXES

ASTROFLIGHT 110 and 112 Deluxe Digital Peak

Long known for its Cobalt and brushless motors, AstroFlight has also manufactured high-quality peak-detection chargers for almost 15 years. The 110 Deluxe is one of the easiest units to use. Its case has only an amperage adjustment knob; the internal electronics take care of the rest.

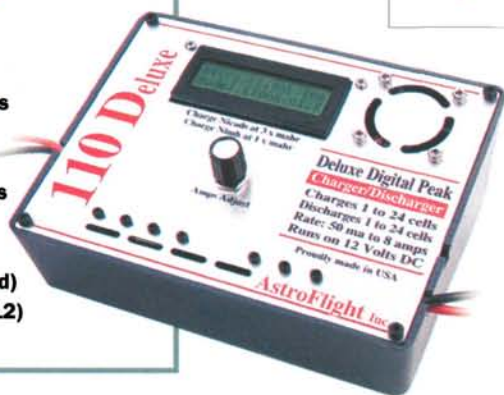
AstroFlight also offers the 112 Deluxe Digital Peak charger. It has all of the features of the 110, but it can handle from 1 to 40 cells in both charging and discharging modes.

KEY FEATURES

- Discharges at a fixed 1.25 amps with auto turnoff
- Displays peak voltage, capacity, charge/discharge time and charge rate
- Reverse-polarity protection for input and output leads
- Backlit, 16x2 dot-matrix display
- Built-in cooling fan
- Zero-loss output connectors
- Alligator input clips

QUICK SPECS

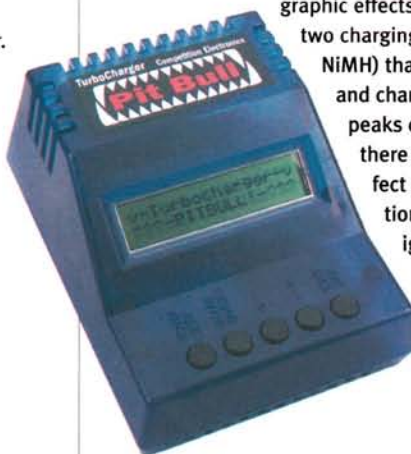
- **CHARGING CAPABILITY**
(Model 110/112)
1 to 24/1 to 40 cells
- **CHARGE AMPERAGE**
0.05 to 8 amps
- **DISCHARGER** 1.25 amps
- **POWER SUPPLY** DC
(power supply required; not included)
- **PRICE** (Model 110/112)
\$137.99/\$163.99



COMPETITION ELECTRONICS Pit Bull

The Pit Bull is one of the smallest chargers in the group, and it's loaded with features. Five buttons on its case allow you to navigate through the many features on the backlit, 16x2 character display. If you like bells and whistles, the Pit Bull has them. Sounds and graphic effects can be selected for different charge functions, but if you don't want sounds to alert you or to see the

graphic effects, they can be shut off. The Pit Bull can store two charging profiles (one for Ni-Cd and another for NiMH) that can be set with different voltage thresholds and charge rates. The "Long Lockout" feature ignores peaks during the first 10 minutes of charging so there isn't any chance of a false peak; this is perfect for those batteries that aren't in great condition. When Long Lockout isn't selected, it will ignore peaks during the first 60 seconds of charging.



QUICK SPECS

- **CHARGING CAPABILITY** 4 to 8 cells
- **CHARGE AMPERAGE** 0.15 to 7 amps
- **DISCHARGER** None
- **POWER SUPPLY** DC (power supply required; not included)
- **PRICE** \$159.99

- Customizable display graphics and audio alerts
- Backlit, 16x2 dot-matrix display
- Programmable Ni-Cd and NiMH charge profiles
- Stores and displays data from last charge session
- Adjustable voltage threshold from 0.012 to 0.192 volt
- "Long Lockout" feature eliminates false peaking
- Displays peak voltage, charge time and battery capacity in milliwatt and milliamper hours

WHAT MAKES IT A "PRO" CHARGER?

If all you need in a charger is reliable peak detection, less expensive models than those featured here can do the job. For the purposes of this guide, we selected only "pro" chargers, which we define as any charger that has, at the very least, these three critical features:

- Ni-Cd and NiMH compatibility
- Digital display
- Adjustable charge amperage with a maximum output of 5 amps or more

The featured chargers are listed alphabetically by manufacturer name, and actual prices vary with dealer.

PRO CHARGER GUIDE

COMPETITION ELECTRONICS Turbo 35 BL Stealth Edition

With its many features and reliable operation, the Turbo 35 has long been a favorite of racers. Just make sure that you have enough room and money for the charger because it is the biggest and most expensive of the lot. The Turbo can charge, discharge and cycle your packs, and at the same time, it provides information that can be directly related to the numbers on your matched packs. The discharger on the Turbo 35 can be set at anywhere from 15 to 35 amps for 1, 4 and 6 cells and from 15 to 25 amps for 7 cells, and the voltage cutoff is completely user selectable. A motor run-in option lets you power lathes and break in and rate your motors without the need for a separate power supply. The Turbo 35 features a "TurboFlex" charge setting to rejuvenate older Ni-Cd batteries.

- Stores up to three charging setups
- Different discharge modes for pack conditioning
- Backlit, 16x2 dot-matrix display
- Displays peak voltage, relative internal resistance, actual internal resistance, capacity, discharge time, average discharge voltage and supply voltage
- Automatic cycle mode
- Motor run-in option
- Customizable text and audio alerts
- "TurboFlex" battery conditioning
- Computer serial port for hookup to PC
- Built-in cooling fan

QUICK SPECS

- **CHARGING CAPABILITY**
1 to 7 cells
- **CHARGE AMPERAGE**
0.3 to 12 amps
- **DISCHARGER** 15 to 35 amps
- **POWER SUPPLY** DC (power supply required; not included)
- **PRICE** \$439.99



DURATRAX IntelliPeak Digital Pulse

DuraTrax has brought high-quality NiMH charging, discharging and cycling functions to us all with its IntelliPeak Digital Pulse Charger. The IntelliPeak is very simple to use with a high amp output (up to 6.5 amps), a 0.1 amp trickle-charger, a 2- or 10-amp discharger and a convenient cycling mode to maintain any battery. The IntelliPeak can also charge your transmitter batteries. Although this is a DC charger, DuraTrax includes an ultra-small, AC wall-type power supply that even has a cooling fan.

QUICK SPECS

- **CHARGING CAPABILITY**
4 to 8 cells
- **CHARGE AMPERAGE**
0.5 to 6.5 amps
- **DISCHARGER** 2 to 10 amps
- **POWER SUPPLY** DC (power supply included)
- **PRICE** \$119.99

- Seven-segment digital
- Displays charge rate, voltage and battery capacity
- Adjustable charging amperage from 0.5 to 6.5 amps
- Discharges at 2 or 10 amps down to 2.6 volts
- Ultra-small, 12V, 7A power supply with cooling fan included
- Computerized control
- Reverse-polarity and overload protection
- Internal cooling fans
- Four LED indicators and audible tones
- AC/DC
- Two cycling modes

POWER UP!

Many of the best chargers available are DC only; instead of plugging them into a wall outlet, they must be connected to a separate DC power supply. When choosing a power supply, look for RC-specific units; don't bother with hardware store power supplies (usually in the form of automobile battery chargers). They're bulky and don't deliver the "clean" DC voltage you need for your sensitive charger to function its best.

Glossary

CHARGE AMPERAGE

This is the amount of current, in amps, that the charger can output to the battery.

COMPLETED-CHARGE INDICATOR

An audible tone or display that alerts you when the battery is fully charged.

DELTA PEAK DETECTION

Chargers that look for a change in voltage as an indicator of peak battery capacity are said to be "delta peak" chargers. Delta is what we call the Greek symbol for "change"; hence the name.

DISCHARGER AMPERAGE

The amount of load, in amps, that the charger can safely use to discharge a battery.

NIMH-COMPATIBLE

For best performance, nickel-metal-hydride (NiMH) cells require slightly different charger settings. Some chargers are adjusted to suit NiMH cells by lowering the unit's voltage threshold setting; others use special software to accommodate the cells.



DURATRAX Piranha Digital Peak

The DuraTrax Piranha is microprocessor-controlled to provide a high-quality charge while protecting your packs from being over-charged. A variety of charge settings allows Piranha users to alter the charging current, delta peak and cell type along with viewing charge time and cell capacity. Up to 10 charge profiles for a variety of battery packs can be stored. The built-in LCD display is angled to make viewing easier. Charge current is selectable from 0.1 to 5 amps, and the adjustable threshold is from 3 to 20 millivolts. When a charge has been completed, an audible signal alerts you that the battery is ready for use.

- 8x2-character dot-matrix display
- Displays charge rate, voltage, capacity, peak detection in millivolts and charge time
- Adjustable voltage threshold from 3 to 20 millivolts
- AC/DC
- Reverse-polarity and short-circuit protection
- Stores up to 10 charge profiles
- Multiple sound cues
- Three trickle-charge rates: 0, 0.1 and 0.2 amp
- Computerized control

QUICK SPECS

- **CHARGING CAPABILITY** 1 to 8 cells
- **CHARGE AMPERAGE** 0.1 to 5 amps
- **DISCHARGER** None
- **POWER SUPPLY** AC/DC
- **PRICE** \$59.99

ELECTRIFLY Triton

ElectriFly's Triton can charge virtually any RC battery. In addition to NiMH and Ni-Cd batteries, the Triton can charge lithium-ion (li-ion), lithium-polymer (li-poly) and lead-acid cells. Navigation through the user-friendly menu system is unique; instead of the traditional up/down function buttons, a rotating dial changes charge settings. A built-in discharger and cycling feature helps bring new life to old cells, and a built-in cooling fan prevents the delicate circuit boards from being damaged by excessive heat.

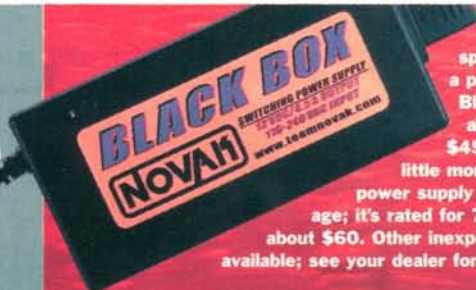
- Adjustable cycling
- 16x2-character dot-matrix display
- Optional temperature sensor prevents lithium-ion and NiMH cells from being overheated
- Stores up to 10 charge profiles
- Recalls data for up to 10 cycles
- Internal cooling fans
- Displays charge rate, voltage, capacity and charge time

QUICK SPECS

- **CHARGING CAPABILITY** 1 to 24 Ni-Cd or NiMH cells; 1 to 4 lithium-ion cells; 1 to 3 lithium-poly cells; 6V, 12V and 24V lead acid batteries
- **CHARGE AMPERAGE** 0.1 to 5 amps (2.5 amps max for lithium-ion and 1 amp for lithium-poly)
- **DISCHARGER** 0.1 to 3 amps (2.5 amps maximum for lithium-ion)
- **POWER SUPPLY** DC (power supply required; not included)
- **PRICE** \$149.99



You should next consider the amperage of the unit; if you plan to charge packs at 5 amps, but your power supply maxes out at 3 amps, the charger won't be able to perform as you would like it to. Most racers use a 10A power supply; this is enough juice for any charging need.



You don't have to spend a lot of money on a power supply. Novak's Black Box delivers 4.5 amps and costs about \$45. Or, you can spend a little more for DuraTrax's power supply and get more amperage; it's rated for 7 amps and goes for about \$60. Other inexpensive choices are available; see your dealer for more.

OVERLOAD PROTECTION

If the charger is overloaded because of a short circuit, faulty battery, or other problem, this feature shuts down the charger before damage can occur. Some chargers use an expendable fuse to do the job; others use solid-state circuitry.

REVERSE-POLARITY PROTECTION

Protects the charger from being damaged if the battery (or power supply, if DC-only) is accidentally installed "backward" (positive to negative).

TRICKLE-CHARGE

A low-amp charging option that helps to maintain a full charge until you're ready to use the pack (not recommended for NiMH cells).

VOLTAGE THRESHOLD

To simplify, chargers generally "look for" a drop in the battery's voltage as an indicator of a full charge. However, voltage fluctuations during charging are normal, so the charger "waits" for the voltage to drop by a certain amount before recognizing the drop as an indicator of a complete charge. The actual drop in voltage that the charger "looks for" is described as the "voltage threshold." This value is adjustable on some chargers.

THERMAL PEAK DETECTION

This is an alternative method to delta peak detection. The charger uses a probe to monitor the amount of heat the pack generates while charging, and then stops charging when the pack reaches a predetermined temperature.



GM RACING GMVIS Commander

We know GM as a manufacturer of race-bred ESCs, and it offers that same level of performance in the GMVIS Commander—a high-tech, multifunction battery charger. The Commander uses a voltage increasing system (VIS) to lower the internal resistance of a particular pack to increase performance. The Commander can discharge single cells for rematching, and it can discharge as many as 30 cells at one time. A 5V motor run-in option makes breaking in motors and running a lathe easy.

The Commander can also charge a race pack and a transmitter or receiver pack at the same time; this alleviates any worries about swapping packs on and off the charger.

- Four charging modes
- Timer function
- Adjustable cycle function
- PC port for interface with home computer
- VIS (voltage increasing system) is claimed to enhance battery voltage and performance
- Backlit, 16x2 dot-matrix display
- Built-in cooling fans
- Motor run-in option
- Second output lets you charge receiver or transmitter batteries and sub-C packs simultaneously
- Displays charge/discharge rate, voltage and capacity

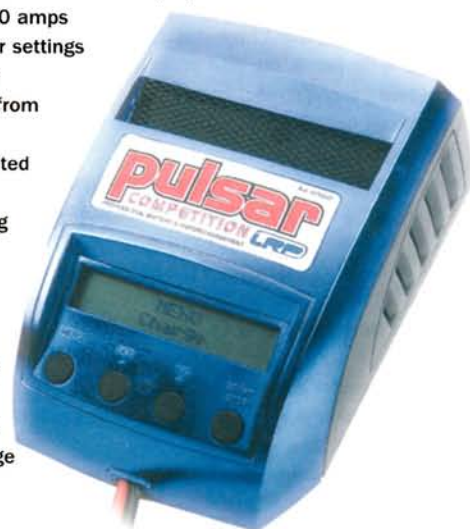
QUICK SPECS

- **CHARGING CAPABILITY** 1 to 30 cells
- **CHARGE AMPERAGE** 0.2 to 20 amps
- **DISCHARGER** 1 to 20 amps
- **POWER SUPPLY** DC (power supply required; not included)
- **PRICE** \$369.95

LRP Pulsar Competition

Marketed as a "Battery Management System," LRP's Pulsar is micro-processor-controlled to ensure that your packs are safely and fully charged. With the ability to vary the charge from 0.1 to 8 amps, the Pulsar is ready to charge Ni-Cd and NiMH packs of all sizes and even allows you to adjust the charge amperage without interrupting the charging process. Linear and flex-charge modes make it easy to get the best from your new and old batteries. The Pulsar can also power motors for break-in or to operate a comm lathe.

- Automatically restarts if power is interrupted
- Charge delay timer can be set for up to 99 minutes
- Adjustable motor run-in feature of from 2 to 7.2 volts
- Blue, backlit, 16x2 dot-matrix display
- Discharges at 10 amps
- Memory for user settings
- Auto-start timer
- Trickle-charges from 0 to 0.4 amp
- Computer-operated cooling fan
- Flexible charging mode
- Compact case won't clutter your pit space
- Displays charge rate, voltage, capacity, charge mode and charge time



QUICK SPECS

- **CHARGING CAPABILITY** 1 to 8 cells
- **CHARGE AMPERAGE** 0.1 to 8 amps
- **DISCHARGER** 10 amps
- **POWER SUPPLY** DC (power supply required; not included)
- **PRICE** \$199.99

CHARGER FEATURES	ASTROFLIGHT T10 DELUXE DIGITAL PEAK	ASTROFLIGHT T12 DELUXE DIGITAL PEAK	COMPETITION ELECTRONICS PIT BULL	COMPETITION ELECTRONICS TURBO 35 BL SE
CHARGE AMPERAGE	0.05 to 8 amps	0.05 to 8 amps	0.15 to 7 amps	0.3 to 12 amps
DISCHARGER/AMPERAGE	Yes/1.25 amps	Yes/1.25 amps	None	Yes/15 to 35 amps
OVERLOAD PROTECTION	Yes	Yes	Yes	Yes
REVERSE-POLARITY PROTECTION	Yes	Yes	Yes	Yes
INPUT POWER	DC	DC	DC	DC
CHARGING CAPABILITY	1 to 24 cells	1 to 40 cells	4 to 8 cells	1 to 7 cells
VOLTAGE THRESHOLD	Non-adjustable	Non-adjustable	0.012 to 0.192V	0.01 to 0.19V
TRICKLE-CHARGE FUNCTION	None	None	Yes	Yes
COOLING FAN	Yes	Yes	None	Yes
WARRANTY	90 days	90 days	90 days	90 days
CASE SIZE (IN.)	5x6.75x2.75	5x6.75x2.75	5x3.81x2.44	9.75x8.38x3.94
DISPLAY	Backlit, 16x2 dot matrix	Backlit, 16x2 dot matrix	Backlit, 16x2 dot matrix	Backlit, 16x2 dot matrix
PRICE*	\$137.99	\$163.99	\$159.99	\$439.99

*Price varies with dealer **Includes power supply

MRC Super Brain 959

The MRC Super Brain comes with a bunch of high-end features yet has the lowest price of all the chargers in this guide (and although it's 0.5 amp less than our "5-amp-max" rule, we're letting it squeak by). AC/DC power inputs make the Super Brain versatile for the track and the parking lot. In addition to charging 1 to 8 Ni-Cd or NiMH cells, a third setting for single glow driver batteries makes this an excellent choice for budget-minded nitro racers. The delta peak and charge amperage are user selectable, and the display screen makes it easy to monitor a battery's charge-current status.

- Adjustable voltage threshold 5 to 70 millivolts
- Monitors and displays battery status, voltage, current, charging time and voltage threshold
- Plug-and-play and programmable operation
- Seven-segment digital
- Charger stand included
- AC/DC



QUICK SPECS

- **CHARGING CAPABILITY**
1 to 8 cells
- **CHARGE AMPERAGE**
0.5 to 4.5 amps
- **DISCHARGER** None
- **POWER SUPPLY** AC/DC
- **PRICE** \$56.99

LEAST EXPENSIVE

NOVAK Millennium Pro

Novak was one of the first manufacturers to address the needs of NiMH users with the original Millennium charger. The Millennium Pro features an improved user interface, backlit display, a countdown timer and integrated Pit Wizard. With the Pit Wizard software, users of the Cyclone C2 and TC2 ESCs can customize their ESCs without needing to carry another device with them. The countdown timer allows you to hook up a battery, walk away, and have the Pro automatically begin charging. One of the most useful features is its new "Triple Detection NiMH2" mode, which was designed from the ground up to eliminate the possibility of false peaks with NiMH cells.



QUICK SPECS

- **CHARGING CAPABILITY**
4 to 8 cells
- **CHARGE AMPERAGE**
0.5 to 7 amps
- **DISCHARGER** None
- **POWER SUPPLY** DC
(power supply required; not included)
- **PRICE** \$169.99

- Three charge modes: Ni-Cd, Ni-Cd reverse pulse and NiMH2
- Stores five charging profiles
- Backlit, 16x2 dot-matrix display
- Customizable display with your name
- User-selected audible alerts
- Built-in Pit Wizard programmer for Novak Cyclone- and Atom-series speed controls
- Delay-charge timer
- Fuse-protected
- Built-in cooling fan
- Displays charge rate, voltage, capacity, mode, charge time, number of cells, voltage threshold, peak voltage and energy (joules)

INCLUDES PIT WIZARD SOFTWARE

WHAT ELSE DOES IT DO?

Some of the chargers listed here do more than just charge. Many have built-in dischargers, which are much handier than those light bulbs you've been toting around. But before you give up the bulbs, be certain to check the discharge amperage; the discharger should be able to handle 20 amps if you plan to dump your packs under race-like loads. Check the spec comparison chart for amp ratings.



Another useful charger feature is the ability to run a motor, either for break-in or to operate a comm lathe. The LRP Pulsar and Competition Electronics Turbo 35 have this feature and allow you to adjust the voltage to control motor speed.

DURATRAX INTELLIPEAK DIGITAL PULSE	DURATRAX PIRANHA DIGITAL PEAK	ELECTRIFLY TRITON	GM RACING GMVIS COMMANDER
0.50 to 6.5 amps	0.1 to 5 amps	0.1 to 5 amps	0.2 to 20 amps
Yes/2 or 10 amps	None	Yes/0.1 to 3 amps	Yes/1 to 20 amps
Yes	Yes	Yes	Yes
Yes	Yes	Yes	No
DC**	AC/DC	DC	DC
4 to 8 cells	1 to 8 cells	1 to 24 cells	1 to 30 cells
Non-adjustable	3 to 20mV	3 to 20mV	0 to 30mV
Yes	Yes	Yes	None
Yes	None	Yes	Yes
1 year	1 year	1 year	1 year
6x4.25x2.19	5.5x4.94x3.38	4.13x5.94x2.06	6.69x7.25x2.75
7-segment digital	8x2 dot matrix	16x2 dot matrix	16x2 dot matrix
\$119.99	\$59.99	\$149.99	\$369.95

PRO CHARGER GUIDE

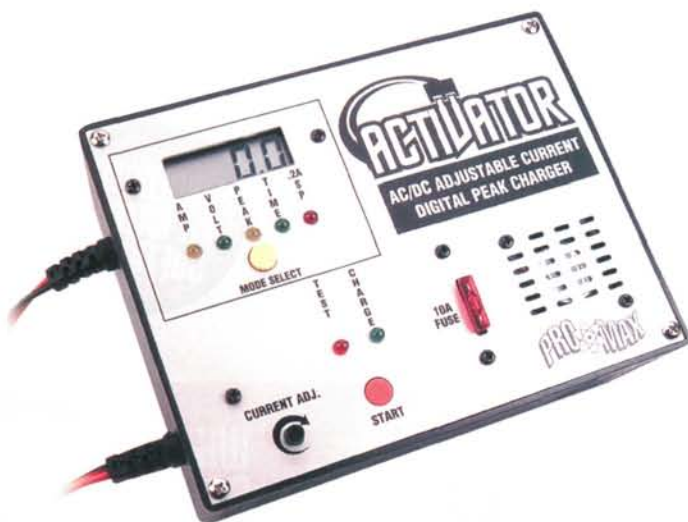
PRO-MAX Activator

This Ni-Cd- and NiMH-friendly unit charges from 1 to 8 cells using power from a 12V DC source or a standard 110V AC outlet. Charge status is indicated on the large LCD or the multicolored LEDs on the front of the Activator. Stock-class racers will appreciate the high charge output of up to 6 amps. Once charging is complete, the Activator ends its fast-charge mode and begins a 0.1A trickle-charge. An adapter to charge glow-igniter batteries is included.

- Easy to use
- Stores charging time and peak voltage
- Internal cooling fan
- Automatic trickle-charge at 0.1 amp
- Audible charge-complete alert
- Adapter to charge glow-igniter batteries included
- Simple menu system
- Seven-segment digital
- Displays charge rate, voltage, peak voltage and charge time

QUICK SPECS

- **CHARGING CAPABILITY**
1 to 8 cells
- **CHARGE AMPERAGE**
0.5 to 6 amps
- **DISCHARGER** None
- **POWER SUPPLY** AC/DC
- **PRICE** \$119



PROLUX Digipeak

The Prolux Digipeak has a modern design and a straightforward layout, and its many features make this small unit appealing. It charges and discharges 1 to 14 cells, the bright LEDs and a beeper indicate the charge status, and the large LCD screen is easy to read. A fuse protects the system, and an internal cooling fan keeps the unit cool.

QUICK SPECS

- **CHARGING CAPABILITY**
1 to 14 cells
- **CHARGE AMPERAGE**
0.3 to 5 amps
- **DISCHARGER** 2 to 3 amps
- **POWER SUPPLY** DC (power supply required; not included)
- **PRICE** \$75

- Seven-segment digital display
- Displays charge rate, voltage, and battery capacity
- Discharges from 2 to 3 amps
- Trickle-charges from 0.15 amp
- Cooling fan
- Audible alert
- Easy to plug in terminal for battery leads

CHARGER FEATURES	LAP PULSAR COMPETITION	MRC SUPER BRAIN 959	NOVAK MILLENNIUM PRO	PROLUX DIGIPEAK
CHARGE AMPERAGE	0.1 to 8 amps	0.5 to 4.5 amps	0.5 to 7 amps	0.3 to 5 amps
DISCHARGER/AMPERAGE	Yes/10 amps	None	None	Yes/2 to 3 amps
OVERLOAD PROTECTION	Yes	Yes	Yes	Yes
REVERSE-POLARITY PROTECTION	Yes	Yes	Yes	Yes
INPUT POWER	DC	AC/DC	DC	DC
CHARGING CAPABILITY	1 to 8 cells	1 to 8 cells	4 to 8 cells	1 to 14 cells
VOLTAGE THRESHOLD	5 to 80mV	5 to 70mV	2 to 20mV	Non-adjustable
TRICKLE-CHARGE FUNCTION	Yes	None	Yes	Yes
COOLING FAN	Yes	None	Yes	Yes
WARRANTY	1 year	1 year	120 days	90 days
CASE SIZE (IN.)	6x3.88x2.75	5.06x3.62x2.84	4x4.38x2.33	5.19x6.75x2.5
DISPLAY	Blue backlit, 16x2 dot matrix	7-segment digital	Backlit, 16x2 dot matrix	7-segment digital
PRICE*	\$199.99	\$56.99	\$169.99	\$75

*Price varies with dealer **Includes power supply



REEDY Quasar Pro

Reedy's first entry in the pro-charger market eliminates the need for an external power supply, so your pit box will be lighter and you'll also open up valuable real estate on your pit table. The four black buttons on the front of the Quasar make it easy to scroll through and set all of the charging parameters, which include amperage, pack type, voltage threshold and milliamp ratings. The Quasar Pro can charge, discharge and cycle all sizes of cells.

QUICK SPECS

- **CHARGING CAPABILITY**
4 to 8 cells
- **CHARGE AMPERAGE**
0.5 to 6.5 amps
- **DISCHARGER** 0.1 to 20 amps
- **POWER SUPPLY** AC/DC
- **PRICE** \$199.99

- Automatic cooling fans
- Reverse-polarity protection
- AC/DC
- Backlit, 16x2 dot-matrix display
- Adjustable voltage threshold 3 to 20 millivolts
- Discharging and cycling capabilities
- Adjustable discharge rate 0.1 to 20 amps
- Audible alert
- Displays charge rate, voltage, capacity, charge time, input voltage, peak charge voltage and battery type

TEAM ORION D67

The D67 features an adjustable output amp rate of up to 10 amps, and it's one of the few chargers that has a thermal-peak detection option. The LCD display shows the charge current, voltage, charge time, charge rate and the capacity of the pack being charged. A timer function eliminates most concerns about over-charging. It forces the D67 to cease charging at a specified time if the pack doesn't trigger the charger to stop. The D67 is relatively small because it's DC-only, which eliminates the need for an internal power source.

- Temperature probe range 32 to 122 degrees Fahrenheit
- Adjustable trickle-charge from 0 to 10 amps
- Backlit, 16x2 dot matrix display
- Display shows charge current, battery voltage, capacity, charging time and temperature
- Timer function
- Power-interruption alarm
- Reverse-polarity and short-circuit protection
- Charging profile memory
- Dual-charging modes: delta peak, thermal-peak detection

QUICK SPECS

- **CHARGING CAPABILITY**
6 to 7 cells
- **CHARGE AMPERAGE**
0 to 10 amps
- **DISCHARGER** None
- **POWER SUPPLY** DC (power supply required; not included)
- **PRICE** \$189



SOURCE GUIDE

ASTROFLIGHT INC. (310) 821-6242; astroflight.com.

COMPETITION ELECTRONICS (815) 874-8001; competitionelectronics.com.

DURATRAX distributed by Great Planes Model Distributors; duratrax.com.

ELECTRIFLY distributed by Great Planes Model Distributors.

GM RACING distributed by Horizon Hobby Inc. (217) 355-9511; horizonhobby.com; gm-racing.com.

GREAT PLANES MODEL DISTRIBUTORS (800) 637-7660; greatplanes.com.

LRP distributed by Team Associated.

MODEL RECTIFIER CORP. (MRC) (732) 225-2100; modelrec.com.

NOVAK ELECTRONICS INC. (949) 833-8873; teamnovak.com.

PROLUX distributed exclusively by OFNA Racing (949) 586-2910; ofna.com.

PRO-MAX distributed by Global Hobby Distributors (714) 964-0827; globalhobby.com.

REEDY a division of Team Associated.

TEAM ASSOCIATED (714) 850-9342; teamassociated.com.

TEAM ORION INC. (714) 694-2812; team-orion.com.

PRO-MAX ACTIVATOR	REEDY QUASAR PRO	TEAM ORION D67
0.5 to 6 amps	0.05 to 6.5 amps	0 to 10 amps
None	Yes/0.1 to 20 amps	None
Yes	Yes	Yes
No	Yes	Yes
AC/DC	AC/DC	DC
1 to 8 cells	4 to 8 cells	6 to 7 cells
Non-adjustable	3 to 20mV	0.02 to 0.3V
None	Yes	Yes
Yes	Yes	None
90 days	90 days	90 days
5.25x6.81x2.5	6.69x6.31x2.31	4.69x5.19x2.38
7-segment digital	16x2 dot matrix	16x2 dot matrix
\$119	\$199.99	\$189

RCX

Join us at the
most exciting
RC event in history!

-travaganza!

by Greg Vogel

RCX is almost here! Our first ever Radio Control Exposition (or "RCX," as we call it) will take over the Anaheim Convention Center (that's California, guys) on May 3 and 4, and it won't be like any other "hobby show" you've ever attended. RCX isn't just about the latest gear; the floor will be packed with events, demonstrations, entertainment and all types of RC action. And if you can't make it to Cali, you can still check out the show by logging on to our live online coverage! This is just a sample of what to expect at RCX.

Stunt and demo tracks

You won't have to settle for static displays; you'll see the latest vehicles in action on the RCX dirt, on-road, and stunt tracks. These areas will be action-packed all weekend; look for:

- ▶ Pro's pitching their factory rides off huge ramps in the stunt park — guaranteed lots of air.
- ▶ High-speed on-road racing with the newest nitro cars.
- ▶ Full-throttle off-road action on the jumps and berms on the dirt track.
- ▶ "Try-me" tracks! You drive it! In addition to enjoying pro-driver demos, you'll be able to take the wheel and try the latest rides yourself.



Battling 'bots!

So you want to see metal monsters duke it out in a Plexiglas cage? No problem! The Steel Conflict guys will be at RCX to stage exhibition battles! You've seen fighting robots on TV, but nothing can compare with seeing these awesome alloy antagonists for real — just a few feet away. When parts start to fly, you'll appreciate why there's a thick sheet of polycarbonate between you and the action! After taking in the fights, you'll no doubt want a robot of your own, and that brings us to the Sozbots, which you'll also see in action at RCX. These "ant-weight" micro 'bots fight like the big guys but weigh just a pound or less, and they're far easier (and cheaper!) to build than the mega machines. You gotta see them!



RCX wheels

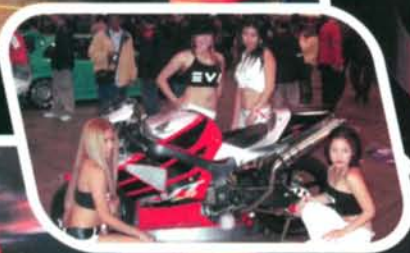
Truck fans! Kyosho will release its RCX Mad Force at the show. It's a tricked-out version of the radical 3-speed, big-block monstercar. In addition to RCX graphics, you'll find all of Kyosho's factory options under the hood, so this already wild ride is now an even mightier monster experience!

The Tuner connection

RCX is already in full swing with spectacular RC action at full-scale auto shows such as Hot Import Nights and Import Revolution. Tuners are enjoying RC at the two most popular shows on the import-car scene. The response has been sensational, so we'll bring the "big cars" to RCX. Fast and furious full-scale rides will be on display. You'll need a camera and your best Vin Diesel impersonation!



IMPORT REVOLUTION
iR



Tech zone

Want to learn how to break in an engine? Tune a carburetor? Tweak a motor? Paint a body? Head over to the Tech Zone where the industry's top tech guys will show you the ins and outs of the latest vehicles, engines and products and answer your questions. Nothing is more instructive than seeing a job done right!



LOOK! up in the sky!

RCX isn't just for cars; it's for RC everything, and naturally, that includes planes! The latest in easy-to-fly electric aircraft will be overhead in designated flight zones, and you won't want to miss the eye-popping "3D" aerobatic flying demonstrations. You'll be blown away by what these incredible aircraft can do! You'll also be able to see pro pilots put high-performance helicopters through their paces, and you'll be able check out the latest micro choppers that can be flown in your living room. Everybody wants a helicopter!

car action
MECHANICAL CHOICES
AWARDS

Car
action of the
year

car action
TRUCK
OF THE YEAR

We'll announce all the winners at RCX!
Be the first to find out who won!



The stuff

RC heaven! Row after row of shiny new gear and all the catalogs you can carry. If you've seen it in RC Car Action, you'll find it at RCX—plus tons of new stuff you haven't seen!
—and you can
buy it at the show!

see you there!

If you'd like to join us at RCX (and we know you would), click over to www.rcexpo.com. You'll find ticket info, more pictures and details of the show's features. And keep reading Radio Control Car Action and RC Nitro! We'll have special promos and RCX giveaways as we get closer to show time. Be there! ■

click trip
RCXPO.COM

BY GEORGE M. GONZALEZ & JASON SAMS

TRINITY HOOKS UP CAVALIERI

As a "Racer News" reader, you already know that Ryan "Pudge" Cavalieri is one fast driver, with a TQ at the 2002 Gas Off-Road Nats and many pro podium finishes. He brings his talents to Trinity, who realizes that the kid's stock will only go up as he gets older.



GONE GOLFING

Word has it that Baker and Lemieux have been spending a lot of time playing arcade golf.

Apparently, this is how they choose to spend their time between races instead of following Kevin Hetmanski's 5-point Power Training System pre-race workout (featured in the January 2003 issue) that other pro drivers use. Is their system better? Only time will tell.

SITE SEEING



www.midnitechallenge.com

At this site, you can race with your buddies and other online players using hundreds of real cars that can be tricked out with thousands of performance parts. The free site lets you dyno-test your cars, steal other racers' vehicles and win prizes during every game. There is multiplayer action, so grab some friends and have fun trying to put yourself into the winners' circle.

BOARD WALK

FROM THE
RADIOCONTROLZONE
.COM BULLETIN BOARD

How to dye rims

USER19193: I use food coloring to dye my rims, but I'd like them to be darker. Any advice out there?

STRIDER67: Buy a box of Rit clothing dye. One packet will easily dye two rims. Follow the directions on the package.

RAMOS: Although it sounds strange, I dye my plastic items with Kool-Aid. I just mix a packet with a cup of water.

Batteries way too hot!

BITURBO15: I just got a new 9-turn-double motor that makes my batteries really hot! Should I freeze them?

GRIZZBOB: No, do not freeze your batteries. It will slow down the chemical reaction and will hurt the cells.

HIGHROLLER: Modified motors draw higher amperage than a stock motor, so you can expect the battery temperatures to get much hotter.

KOLD: Always allow your batteries to cool down before you charge or use them.

Preventing a crooked body

NMT6789: I finished a new body, and now I need to make the holes for the body posts. How do I line them up properly?

YENDOR: Set your car on a glass table, and shine a flashlight on it from underneath. Mark your mounting holes with a permanent-ink pen. Body posts should not be too long.

RCWOODTEK: Align the body over the car, and rest it on the body posts. Dot the posts with a marker before you paint it.

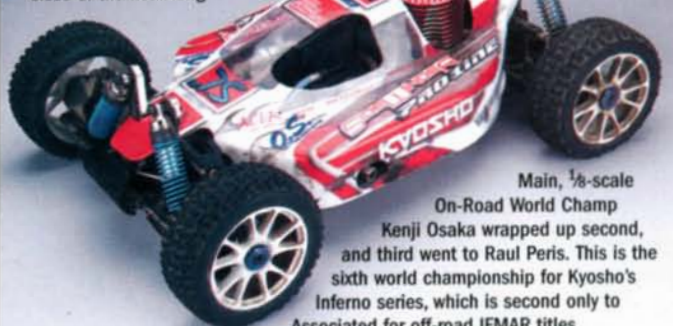
BE HEARD! LOG ON AT
RADIOCONTROLZONE.COM

DEGANI AND KYOSHO WIN 1/8 BUGGY WORLDS



Greg Degani's O.S.-powered Kyosho Inferno MP-7.5 put the Californian in the record books as the first American to win the hotly contested 1/8-scale Off-Road

World Championships. At the close of the hour-long



Main, 1/8-scale
On-Road World Champ

Kenji Osaka wrapped up second, and third went to Raul Peris. This is the sixth world championship for Kyosho's Inferno series, which is second only to Associated for off-road IFMAR titles.

PIMP FEST



Ray Murray and South Jersey Cost Controlled Racing held a PimpFest Sedan Championship race at which it was more important to look good than to be fast! The event was held in the parking lot of the Alpine Lounge in Williamstown, NJ. PimpFest attracted more than 80 sedans competing for the five titles that were up for grabs. This race also featured a special award for the most outrageous pimp hat worn in the Mains. All of the racers also got to participate in a photo shoot with some bikini-clad trophy girls. The race had a party atmosphere and was a great success, so look for it again next year.

"People might think I race for the paid traveling and free Losi cars, but they are sadly mistaken. I race for the chicks and my fans." —Team Losi's Greg Hodapp

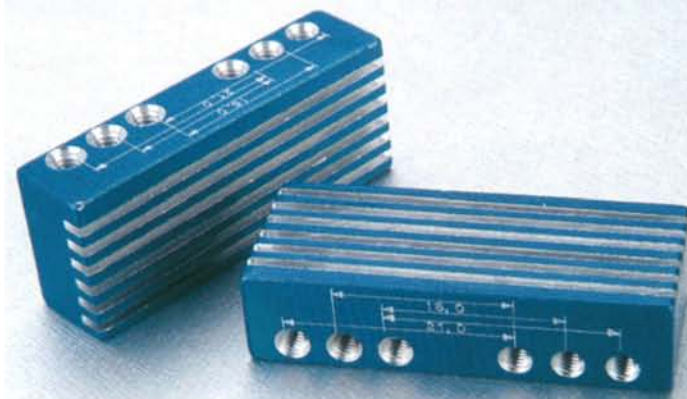
SPEED SHOP



TRC On-road 1/12-scale foam tires

TRC's new foam 1/12 tires are mounted on rigid, yellow, plastic rims. The spokes are well supported to resist flex, and the tires are available in several front and rear compounds.

Each package contains two front or rear tires and a TRC decal.
Part numbers and prices vary with compound.
TRC (732) 635-1600; teamtrinity.com.



FIORONI OPTION TEAM Engine mounts

Fioroni has released these special blue-anodized engine mounts for the GS Storm to help improve engine cooling. To lighten the mounts, Fioroni milled out the centers and machined fins into its sides to enlarge the cooling area. The unique features, however, are the measurement marks that are etched onto the top of the mount to help you install the engine properly.

Item no. OT-GS19; \$24.49.

Fioroni Option Parts distributed by General Silicones Co. USA
(626) 338-3815; generalsilicones.com.



ACER RACING 1800mAh NIMH AA batteries

Tired of replacing transmitter batteries before a race? If you run in long nitro races, you probably go through a ton of batteries. Acer Racing offers 1800mAh NiMH cells to increase run time. When the voltage gets low, you can recharge them on a NiMH-safe charger.

Item no. 1800aa4 \$6.99/pack of 4.
Acer Racing (310) 472-8090;
acerracing.com.



NOCER RACING STRATEGIES Heat-sink heads

We bet that the shine on these extra-large heat-sink heads caught your eye. Nocer offers large, high-bling-factor, polished-aluminum heat-sink heads for most popular racing engines. Shown from left to right: a Novarossi/Top/Rex .21 head, a .12 O.S. CV head and a .21 O.S. RZ-V99/RZ-V01B head. The light, two-piece design uses a separate glow-plug button so you only have to replace the button if you cross-thread or strip the glow-plug opening. Some of the heat-sink heads are offered with a button; others use the engine's stock button. All Nocer buttons are hand-fit and have tight tolerances for best performance.

Nocer Racing Strategies (270) 782-7750; nocer.com.

HPI High-performance air cleaner

HPI's filter features a thick, oiled-foam outer element, a thin, nylon-mesh central element and a third, internal, oiled-foam element to keep out dirt and dust while allowing as much air as is possible into the engine. Two nylon zip-ties are included to attach the filter to any .21 engine.

Item no. 72438; \$17.

HPI Racing (949) 753-1099; hpiracing.com.



TRACK THREADS

TRINITY & TRC Hats

Whether you are trying to keep your dome warm at the track or you want shade, Trinity's and TRC's new hats will do the job and bring you up-to-date in track-gear fashion with multicolored embroidered logos. The hats are available in small-

medium and large-extra large sizes.

Monster Horsepower hat—RC9800; \$9.99

TRC hat—RC9700; \$9.99

Trinity Products Inc. (732) 635-1600;
teamtrinity.com.



UNDER THE HOOD

Chris Doseck's
Trinity Switchblade 12



Chris opened the battery slots on the chassis so he would be able to mount the cells 0.1 inch farther back. This trick provides him with a little more rear bite. Check out the easy-access switch harness; it's mounted on the steering servo with Shoe-Goo.

RACE GEAR

Transmitter KO Propo Mars
Receiver KO Propo Kr-301F
Receiver pack Trinity
Steering servo KO Propo PDS 947 FET
ESC KO VFS 2000

Battery pack Trinity
Motor Fantom Hemi 10-turn
Tires (F/R) Jaco purple/pink
Gearing 26/104
Body Protoform

SETUP

	Front	Rear
Caster	4 deg.	-
Camber	2 deg.	-
Ride height	5mm	5mm
Reactive roll center	Trinity medium ball studs	Trinity medium ball studs
Ackerman	Tie rods at 15-deg. angle	-
Springs	Trinity silver	Associated blue*
Shock oil	-	35WT
Damper-tube oil	-	Corally "soft" fluid
T-Bar	-	Thick 0.075 in. bar
Roll center flat	-	Middle screw installed
Rear shock mount	-	Standard ball stud on rear pod**
Rear track	-	6.675 in.
Rear drop	-	2mm
Battery position	-	Fully rearward
Tire diameter	1.750 in.	1.910 in.

*One coil has been removed from the spring.

**The center shock is mounted on an Associated antenna mount. A tall Trinity ball stud is used to raise the shock.

FACTORY AND AFTERMARKET OPTIONS

- Associated blue titanium steering tie rods
- RPM purple ball cups (mounted on center shock)
- Associated blue VSC coil spring
- Associated antenna mount
- Trinity touring car foam bumper (trimmed to fit under the body)



To reduce weight, Chris took the receiver and ESC out of their respective cases and shrink-wrapped them. Look closely and you'll notice that the 5-cell onboard battery pack is shrink-wrapped to the T-plate's roll center flat. The battery pack is not only mounted securely, but it's also perfectly centered on the chassis. Chris used neon-colored shrink-wrap for style.

5 QUESTIONS

DRIVER:
Chris Doseck
AGE: 35
LAST BIG WIN:
U.S. Indoor
Championships



SPONSORS: KO Propo, Protoform, Pro-Line, Jaco, Fantom, Mugen, Bud's, CD Racing and Parma FasKolor paint

WHEN I'M NOT RACING: I enjoy spending time with my daughter and family, riding a World Superbike, watching Formula 1 and Superbike racing on TV. Basically, my TV stays on the Speed Channel at all times!

RC CAR ACTION: You started way back on the grid in the 1/12-scale Mod A-main. Did you have a battle plan before the race, or did you just wing it?

CHRIS DOSECK: My plan was to drive cleanly and to patiently pick my way through the pack. I also decided to let anyone who came up on me go by because I knew that if I challenged anyone it would cost me in the end.

RCCA: At what point during the Main did you realize that you had a good shot at winning?

CD: When I was running in fourth place and noticed that everyone in front of me was crashing. It wasn't until the last 30 seconds of the race, though, that I came around and ripped the throttle and found that the car was still fast. I knew right then that I was in a position to do some damage.

RCCA: You won with off-the-shelf gear. Tell us about that.

CD: I did not have a chassis or motor sponsor. Last year, my good friend Paul Martin, the owner of Martin Custom Products, a manufacturer of racing go-kart brake systems, bought me a Trinity Switchblade 12 because he knew I could be more competitive if I had the right machine. He also bought a Trinity battery pack to let me use during the race—all off-the-shelf stuff that anyone can buy. When I gave the battery pack to Paul, he told me, "I haven't ever won the U.S. Indoor Champs, but at least my battery pack has!"

RCCA: Did the Team Trinity drivers help you set up your car?

CD: I talked to Josh Cyrul at some of the USTC races, and he gave me a general setup that was a great starting point for me, but I switched to pink-compound rear tires. The tires held traction during the entire run and showed very little wear.

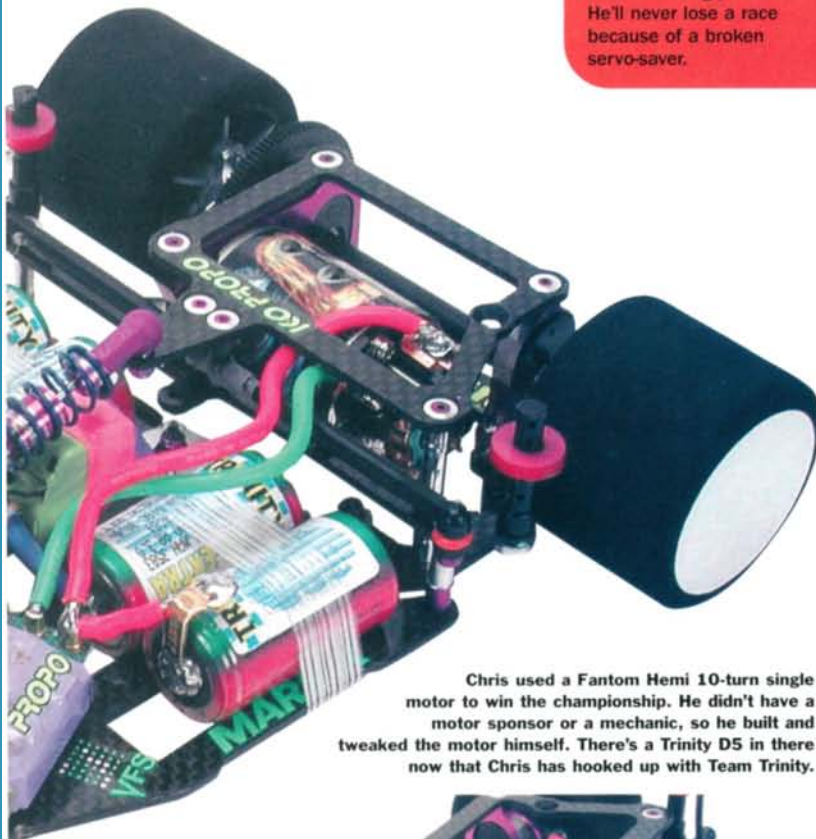
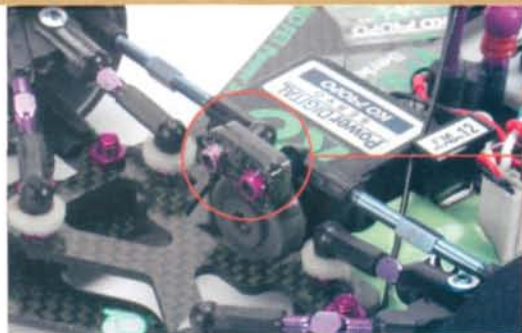
RCCA: You've had a pretty controversial racing career, but it seems that you've matured considerably since the early days.

CD: We all have ups and downs in life, but for the most part, I have always tried to help everyone at races. Even professional, full-scale drivers lose their tempers at some point in their careers. I have definitely matured a lot, and I have a better perspective that life goes on, even if you don't win the "big one"!

RCCA: Good luck! It's good to see you back in the winners' circle. Since winning the Indoor Champs, Chris Doseck has joined Trinity's factory team.

FACTORY DRIVER HOT MOD

Chris beefed up the 1/12-scale Kimbrough servo-saver with a small piece of graphite. The ball studs are threaded through the servo-saver and through holes in the 8x14mm graphite plate and are secured with lock-nuts. The graphite plate reinforces the crucial ball-stud mounting points. He'll never lose a race because of a broken servo-saver.



Chris used a Fantom Hemi 10-turn single motor to win the championship. He didn't have a motor sponsor or a mechanic, so he built and tweaked the motor himself. There's a Trinity D5 in there now that Chris has hooked up with Team Trinity.



SOURCE GUIDE

FANTOM (616) 649-9583;
fantom-motors.com.

JACO (540) 298-7706; jacoracing.com.

KO PROPO (310) 532-9355; kopropo.com.

PROTOFORM distributed by Pro-Line
(909) 849-9781; pro-lineracing.com.

RPM (909) 393-0366; rpmrcproducts.com.

TEAM ASSOCIATED (714) 850-9342;
teamassociated.com.

TRINITY (732) 635-1600; teamtrinity.com.



CLEVELAND ROCKS!

Every year on Thanksgiving weekend, hundreds of dedicated $\frac{1}{12}$ -scale and touring-car racers from around the country (and around the world) gather with friends and racing buddies at the Holiday Inn in Independence, OH, to compete in the U.S. Indoor Championships. The track at this race—one of the oldest and most competitive—is set up inside a hotel conference room, and the racers pit out of their hotel rooms. The race schedule is broadcast over one of the hotel's TV channels to inform racers when it's their turn to race. Pretty cool, huh.

The 23rd U.S. Indoor Champs drew nearly 500 registered racers and filled the hotel to its capacity. Factory drivers from every team competed in the Touring and $\frac{1}{12}$ -scale Mod classes, and that ensured intense, nail-biting action during the Mains. Former IFMAR world champion Chris Doseck's triumphant return to the winners' circle was the biggest upset by far! It wasn't surprising that Chris had the skill to win (after all, he is a former world champ and a very talented driver), but it was amazing that he beat the best drivers in the world without a battery, motor, or chassis sponsor! Here's how it all went down.



THE 23RD U.S. INDOOR

CHRIS DOSECK'S OVER-THE-COUNTER VICTORY

The 1/12-scale Mod class at the U.S.

Indoor Champs is one of the toughest

races in RC. The best drivers from

around the world compete in it,

and the track layouts are always

tight and technical. And, of

course, you need to have

top-shelf equipment, which

many think is the deal-breaker.

It's commonly believed that true

pro-caliber motors and batteries

simply can't be obtained by non-

sponsored racers; many think the best

cells are reserved for the factory drivers,

who match their exclusive battery advantage with

the equally unbeatable advantage of having a personal motor expert to hand-

tweak the very best modified powerplants. Well, so much for that theory!

Former IFMAR champ Chris Doseck, who had been out of the limelight for

several years, entered the race without a chassis, battery or motor sponsor. He

used a Trinity Switchblade 12 that he borrowed from a friend and Trinity Gold

Peak batteries that he bought at the store. He also used a Phantom 8-turn Hemi

motor that he built and tweaked himself. Chris went on to win the

championship without factory support, and that puts his name in the record

books for one of the biggest upsets in RC history. It's a great story, but now we

all have one less excuse for not making the A-main!



Photos by George M. Gonzalez



SPONSORED BY TRINITY, GOLD PEAK BATTERIES & CRC

CHAMPS

by George M. Gonzalez

A-MAIN

1/12 STOCK. TQ Dana Bailes used the prime spot to his advantage for the holeshot to lead the field around the super tight and technical roadcourse. Chris Mockerman was second and Mark Calandra a close third. Then Calandra reeled in Mockerman, and Mockerman reeled in Bailes, and soon they raced nose to tail. Mockerman and Calandra swapped positions going through the technical outfield, while Bailes' CRC Carpet Knife ran away and easily won the championship. Calandra and Mockerman finished second and third, respectively.

1/12 MASTERS. Open to drivers age 35 and above. The cars use 6-cell packs and competition stock motors just as in 1/12 Stock. With the age handicap (chuckle), you might expect these drivers to be slower than those in Stock, but actually, TQ Bob Vanwagner's CRC Carpet Knife was 1 second faster than the 1/12 Stock TQ! Vanwagner had the holeshot and led the



Team Orion's Oscar Jansen is ready to place Team HPI/Team Orion driver Atsushi Hara's prototype car on the starting grid. Check out Hara's new shaft-drive car in "New in the Pits."

way, with Frank Calandra Jr. and Chuck Lonergan close behind. Every time Vanwagner stretched his lead, he tapped a board, bringing Calandra up on his tail again. Meanwhile, Lonergan closed the gap with Calandra, and a three-way battle for the lead ensued. At the 2-minute mark, Vanwagner clipped another board and his car came up on two

wheels—enough room for Calandra and Lonergan to squeeze by. Calandra led, followed by Lonergan's Associated 12L3 and Vanwagner.

Calandra, Lonergan and Vanwagner all passed the finish line before the buzzer, which gave them an extra lap to battle it out. But the running order remained: Calandra (first), Lonergan (second), Vanwagner (third)



Touring Mod TQ Paul Lemieux works on his car in the privacy of his hotel room. He looks comfortable on that couch. Paul recovered after a bad start in the A-main but was unable to get around Mike Dumas.

1/12 MOD. Associated/Reedy driver Barry Baker got the holeshot and escorted the field around the first lap with teammate Mike Dumas and Team Trinity driver Josh Cyrul in tow. After stuffing his car into a board on the next lap, Baker was second behind Dumas, while Cyrul fell to fourth behind Chris Doseck. Then Baker started to reel in Dumas, while Doseck and Cyrul battled for third. Again, Baker stuffed his car into a board, so Doseck slipped by to claim second. Baker's car made strange noises and was out of the race. This left Dumas with a commanding lead, but Trinity driver Paul Lemieux came out of nowhere to claim second in front of Doseck.

With 5 minutes down, Dumas continued to stretch his lead, while Lemieux and Doseck raced their Switchblades nose to tail. Trinity drivers David Spashett and Brian Kinwald came around for a peek and hovered behind Doseck as well. Then all hell broke loose: Dumas crashed into a

new in the pits

HPI

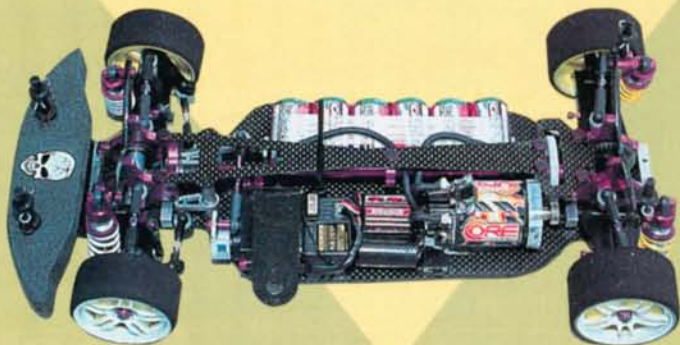
Team HPI/Team Orion driver and former IFMAR world champ Atsushi Hara tested a prototype shaft-drive touring car on the tight and technical Cleveland track. You can see the battery pack installed on the chassis' right side, and the motor, ESC, receiver and steering servo are mounted on the left. A centrally mounted drive shaft links the front and rear ball diffs. Again, this is a prototype; the production model, if ever released, may be constructed from molded composites instead of carbon fiber and machined aluminum.

HPI RACING (949) 753-1099; hpiracing.com.

PARMA

Several A-main racers used Parma's new X20 body with great success. It is available in 190 and 200mm widths and comes with a large adjustable rear wing. The clear Lexan body includes window masks, decals and over-spray film to make painting and detailing a little easier.

PARMA/PSE (440) 237-8650; parmapse.com.



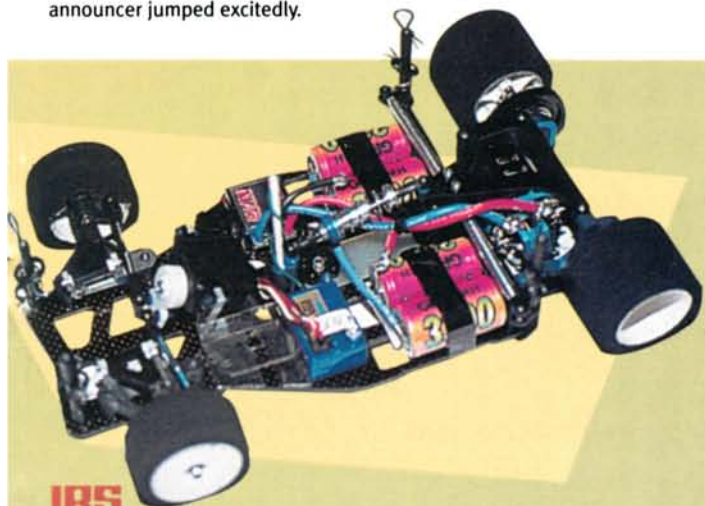
board and before he could blink, his car was tossed around like a kickball. With less than 2 minutes left, Doseck was leading, Kinwald was second, and Dumas recovered to hold on to third.

In the final seconds, Spashett made his way around Kinwald, and Dumas and set his sights on Doseck. It was down to the wire as Doseck and Spashett exited the last corner simultaneously and raced side by side toward the finish line. It looked like a tie, but Spashett's time was 44/8:00.72, while Doseck posted 44/8:00.59 to win the U.S. Indoor 1/12 Mod Championship. Talk about splitting hairs! Spashett was second and Dumas third.

TOURING STOCK. A clean start allowed TQ Dan Miles to lead with Bobby Flack, Chuck Lonergan and Wayne Vince in tow. In the second lap, the leaders pulled away, and Miles and Flack battled. Flack was all over Miles' tail for three laps, but he failed to lead on the short, narrow straightaway; he hit the boards and dropped to third. Miles now had some breathing room, but Lonergan and Vince, close behind, set their sights on the leader.

With half the race over, Miles continued to lead, but Lonergan was all over his rear bumper in second and Flack was back in third. Lonergan continued to pressure Miles, and that tenacity soon paid off when a mistake by Miles cost him the lead and sent him back a few positions. Lonergan now controlled the race with his TC3, and he soon put some space between Flack and Vince, who ran second and third. Lonergan crossed the line first—and before the buzzer—which earned him the championship and a victory lap. Flack held on to second; Vince settled for third.

TOURING MASTERS. TQ Tom Esposito led with Bob Vanwagner and Eli Ezrow in hot pursuit and eager to change positions. A little shuffle in the corners of lap two put Ezrow in the lead and Vanwagner in second, while Esposito's XRAY car fell back to third. In less than 2 minutes, Ezrow and Vanwagner swapped positions several times, while spectators, racers and the announcer jumped excitedly.



IRS

IRS makes so many hop-ups for the Team Associated RC12 LW that it now combines them all in a complete car kit. The new IRS 1/12-scale racer does not yet have a name, but as you can see, it's a tight little chassis. The car features an IRS T-plate and machined-aluminum and graphite motor pod, an IRS ball diff with large-diameter diff rings and a light fiberglass axle, oil-filled micro shocks, left- and right-side tube dampers, 4-cell graphite chassis with battery retainers and a completely adjustable front suspension with easily adjustable roll center.

IRRGANG RACING SERVICE (609) 476-2371.

INTERVIEW

TOURING MOD CHAMP MIKE DUMAS

RC Car Action: I could not believe how tight and technical the track was. Some of the lanes were no wider than 5 feet! How did you manage to keep your car on the track with so much horsepower?

Mike Dumas: Those Reedy 8-turn Ti motors really deliver serious horsepower! In my opinion, however, more power isn't necessarily a good thing. I'm not speaking for all racers, but I think most would agree that touring cars are becoming almost too fast. I think that having a motor limit is a great rule.



RCCA: We heard you were running some of your own custom parts on your TC3. What's the story?

MD: They're from Ready-To-Run RC—a company I started. We design and manufacture racing parts for the Team Associated TC3 and sell them on the online hobby shop. The parts are machined out of black Nylatron—a Delrin composite.

RCCA: Did you use any particular strategy during the race, or did you just wing it?

MD: I was hoping for a clean start, and I got it. As I stood on the drivers' stand waiting for the start tone, I visualized a clean start and making it through the first couple of turns without crashing. I guess the cards fell in my favor that weekend, but many other racers could have easily won the race; it's just the luck of the draw. It felt great to pass the finish line first for a change, though.



IFMAR world champ Brian Kinwald likes pitting out of his hotel room because he can crank up the rave music while he wrenches on his Triple-XS. Brian made the A-main in both Mod classes. I think the Dirtinator needs a new nickname! How about "Enduro-ator"?

FINISH LINE

1/12-SCALE STOCK

FIN.	QUAL.	DRIVER	CHASSIS	BATTERY	MOTOR	ESC	RADIO	TIRES
1	1	Dana Bailes	CRC Carpet Knife	Power Push	Handout	GM	JR	Jaco
2	4	Marc Calandra	CRC Carpet Knife	SMC	Handout	Novak	JR	CRC
3	3	Chris Mockerman	Speed Merchant	SMC	Handout	LRP	KO	CRC

1/12-SCALE MASTERS

1	2	Frank Calandra Jr.	CRC Carpet Knife	World Class	Handout	Novak	JR	CRC
2	4	Chuck Lonergan	Associated 12L3	SMC	Handout	Novak	Futaba	Jaco
3	1	Bob Vanwagner	CRC Carpet Knife	World Class	Handout	Novak	JR	JR

1/12-SCALE MOD

1	7	Chris Doseck	Trinity Switchblade	Trinity	Fantom	KO	KO	TRC
2	2	David Spashett	Trinity Switchblade	Trinity	Trinity	LRP	KO	TRC
3	4	Mike Dumas	Associated 12L3	Reedy	Reedy	LRP	JR	Jaco

TOURING STOCK

1	2	Chuck Lonergan	Associated TC3	SMC	Handout	Novak	Futaba	Jaco
2	4	Bobby Flack	Associated TC3	SMC	Handout	LRP	KO	Jaco
3	3	Wayne Vince	—	—	Handout	—	—	—

TOURING MASTERS

1	1	Tom Esposito	XRAY Evo	Trinity	Handout	Novak	JR	TRC
2	2	Bob Vanwagner	Associated TC3	World Class	Handout	Novak	JR	CRC
3	3	Eli Ezrow	—	—	Handout	—	—	—

TOURING MOD

Fin.	Qual.	Driver	Chassis	Battery	Motor	ESC	Radio	Tires
1	5	Mike Dumas	Associated TC3	Reedy	Reedy	LRP	JR	Jaco
2	1	Paul Lemieux	Losi Triple-X	Trinity	Trinity	LRP	Airtronics	TRC
3	3	Barry Baker	Associated TC3	Reedy	Reedy	LRP	Airtronics	Jaco

— Information not available

Meanwhile, Esposito flanked the leaders, patiently waiting to strike back. That opportunity came with less than 1 minute to race; Ezrow and Vanwagner's cars, racing bumper to bumper, made contact while going through the back sweeper. This little shuffle let Esposito regain the lead, but Vanwagner quickly recovered and again immediately tailed Esposito. It was down to the wire, but Esposito held on to claim the championship. Vanwagner and Ezrow settled for second and third.

TOURING MOD. After several days of practice and four rounds of qualifying, it all came down to this A-main! Team Trinity driver and top qualifier Paul Lemieux had the prime spot on the grid, with Team Associated/Reedy drivers Mike Blackstock and Barry Baker right behind him. At the tone, Baker got the holeshot for the lead with Lemieux right on his tail. Associated/Reedy driver and fifth qualifier Mike Dumas moved to third place.

In the third lap, Lemieux's car tapped a board and flew off the track, allowing Dumas into second place right behind Baker. Baker continued to lead, but a few board taps cost him momentum, and Dumas, laying down



A sea of transmitters. With 490 contestants, the radio impound was one of the busiest areas. Imagine if all the contestants had turned on their radios at the same time. Actually, nothing would happen, but all RC racers within 1/4 mile of the hotel would experience serious glitching.

some superfast laps, was all over Baker's tail. With less than 2 minutes to go, Baker parked his car on an infield board, and that gave Dumas the lead. Lemieux took second, while Baker fell behind Blackstock, who moved to third.

Both Dumas and Lemieux crossed the finish line before the race-end buzzer, so the race was over for all drivers except them. Despite Lemieux's valiant efforts in the last lap, Dumas rolled his Protoform Stratus across the finish line first to win the new U.S. Indoor Mod Touring Championship. Blackstock claimed third.

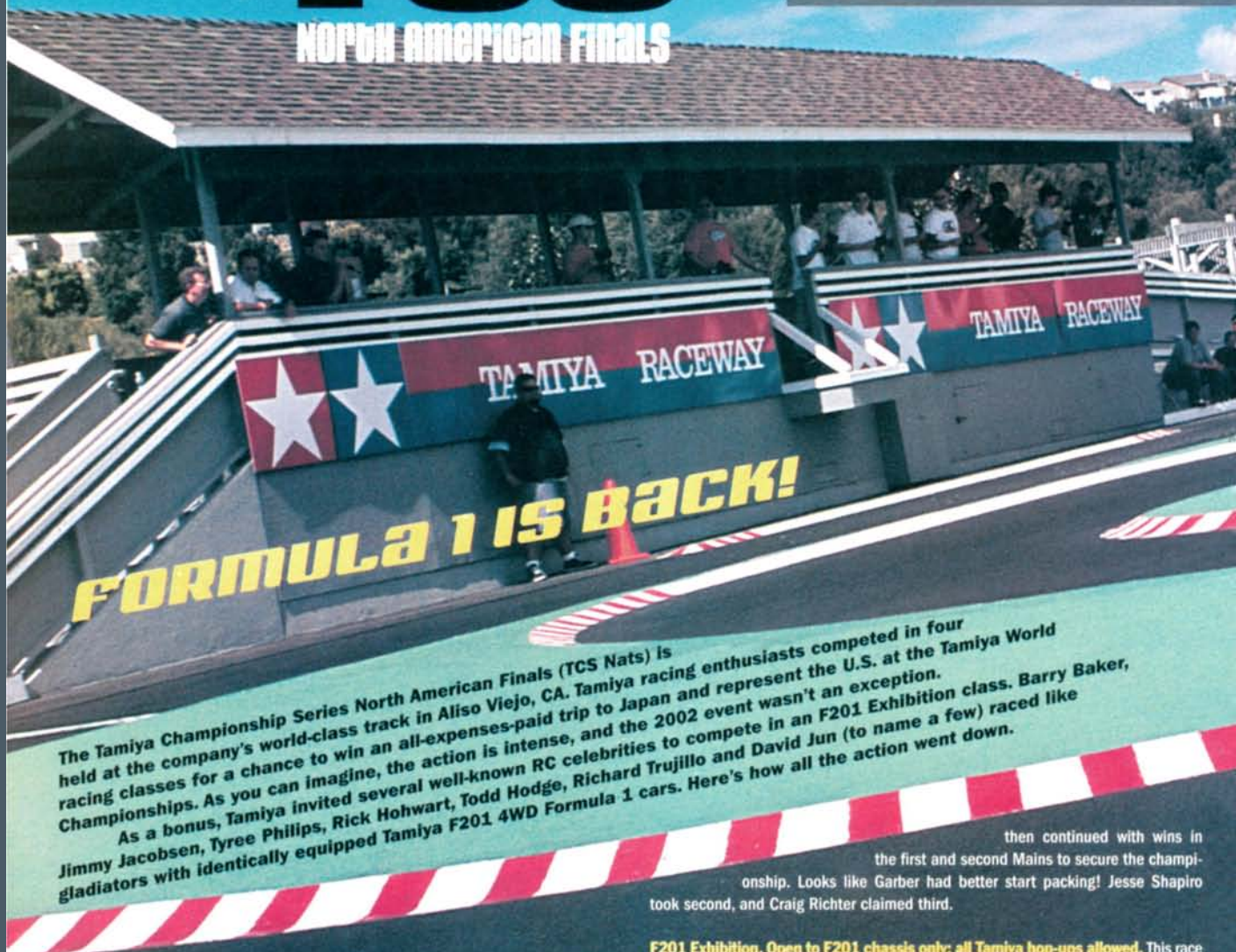
WRAP-UP

The 23rd U.S. Indoor Champs went without a glitch—quite an achievement when you consider the record-breaking attendance. The staff from Medina R/C Raceway in Ohio not only set up a challenging track but also managed everything from the tech table to the radio impound. Congratulations to Chris Doseck for his amazing 1/12 Mod win, to Mike Dumas on his big win in Touring Mod as well as to the Stock and Masters champs. Many thanks to Trinity and CRC for their generous support. ■

TAMIYA TCS

by George M. Gonzalez

NORTH AMERICAN FINALS



The Tamiya Championship Series North American Finals (TCS Nats) is held at the company's world-class track in Aliso Viejo, CA. Tamiya racing enthusiasts competed in four racing classes for a chance to win an all-expenses-paid trip to Japan and represent the U.S. at the Tamiya World Championships. As you can imagine, the action is intense, and the 2002 event wasn't an exception. As a bonus, Tamiya invited several well-known RC celebrities to compete in an F201 Exhibition class. Barry Baker, Jimmy Jacobsen, Tyree Phillips, Rick Hohwart, Todd Hodge, Richard Trujillo and David Jun (to name a few) raced like gladiators with identically equipped Tamiya F201 4WD Formula 1 cars. Here's how all the action went down.

RACING ACTION

GT1. Open to all TA, TB, TL and 414-series cars; all Tamiya hop-ups (including lightweight chassis) allowed. Top qualifier Peter Robinson secured the win in this class even after taking a dreaded DNF in the first Main. Robinson came back with wins in the second and third Mains to earn the championship. Ling Tong ended up in second place overall, and Michael Rydwell claimed third. Peter Robinson will represent the U.S. at the TCS Worlds in Japan.

GT2. Open to all TA, TB, and TL-series cars; must use tub chassis. Joven Madriaga took the TQ honors and the win after finishing second in the first Main and winning the second. He didn't need to race in the third Main because he had enough points to secure the championship, but he raced and won that, too. Sam Hudson took second, and Matt Pozel secured third.

F1. Open to all F-series open-wheel chassis. This is the last year that the F1 class will be offered. In the future, it will be replaced by the F201 4WD F1 class. Tom Hibler won the event—and the trip to Japan—after taking back-to-back wins in the first two Mains. Rodney Canare (second place overall) and Tom Kahl (third place overall) made sure the win didn't come easy for Hibler.

Mini. Open to all M-chassis cars. The cards seemed to be stacked in top qualifier Dan Garber's favor because his Honda S-2000 finished first in every qualifier and

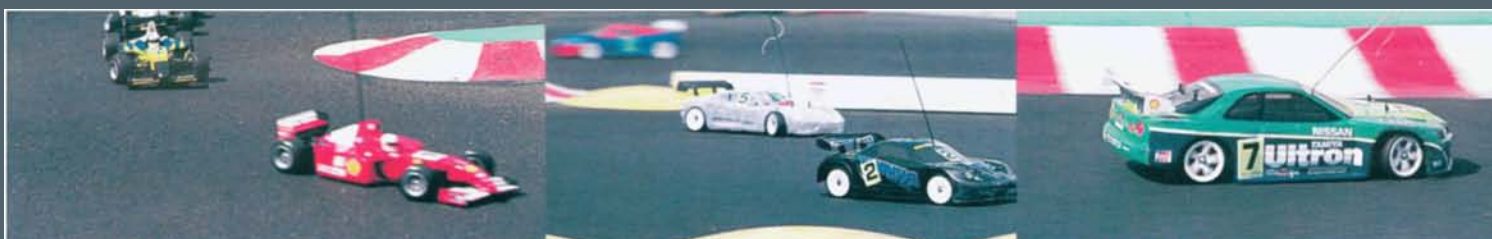
then continued with wins in the first and second Mains to secure the championship. Looks like Garber had better start packing! Jesse Shapiro took second, and Craig Richter claimed third.

F201 Exhibition. Open to F201 chassis only; all Tamiya hop-ups allowed. This race turned out to be the showcase event. Tamiya invited Team Associated driver Barry Baker, Team Losi drivers Todd Hodge and Richard Trujillo and Novak's own Tyree Phillips and Charlie Suanka to mix it up with Tamiya drivers David Jun, Jimmy Jacobsen, Derek Hung and Scotty Ernst in equally equipped F201 chassis cars. All of the vehicles had Tamiya 14-turn modified motors and several choice Tamiya hop-ups.

Although top qualifier Barry Baker turned in some of the fastest lap times at the event, his radical "dive into the corners and brake late" technique literally destroyed his diffs during the Mains. David Jun drove more conservatively, and he finished in front in the first two Mains to secure the championship. He took the honorary DNS in the third Main to let the other drivers battle it out for second- and third-place honors. Baker ended up winning the third Main, but his fourth-place finish in the first Main and eighth-place finish in the second Main prevented him from earning enough points to take a spot on the podium. Jimmy Jacobsen scored second, and Rick Hohwart secured third.

WRAP-UP

The 2002 TCS North American Finals was an absolutely spectacular event. The racing action in the GT1 and GT2 classes was as close as ever, but the F201 Exhibition class proved to be the fastest and most exciting race. It was cool that the factory drivers came down to join the action, and what a great way to launch the new racing class! Tamiya did its usual fantastic job hosting the event. Congratulations to the newly crowned TCS North American Champions; good luck in Japan!



David Jun's winning F201 is equipped with many Tamiya factory options, including bearing-equipped aluminum rocker arms, aluminum shock bodies, tuned springs and more.



TONS OF SWAG

As if an all-expenses-paid trip to Japan wasn't enough, the winners in each class scored a Tamiya Terra

Crusher 4WD nitro monster truck, a Novak GT7 ESC and Millennium Pro charger and a Tamiya T-shirt and baseball cap. Wow! The second- and third-place finishers in every class were awarded new car kits, T-shirts and baseball caps

as well. Throughout the event, Tamiya also raffled off enough car kits and accessories to fill a cargo van, so almost everyone who attended walked away with cool stuff!

Tamiya displayed many of its latest products and set up a retail shop in a giant tent. The shop was stocked with replacement parts, hop-ups, tires and accessories, and great bargains were available on overstocked and discontinued items. Tamiya also gave away mini 4WD kits and static models and offered model-building seminars for the kiddies. ■

The TCS champs (left to right): Joven Madriaga (GT2), Peter Robinson (GT1), Dan Garber (Mini) and Tom Hibler (F1). These guys are off to Japan!



F201 Exhibition class champs (left to right): Jimmy Jacobsen (second), David Jun (champion) and Rick Hohwart (third).

GT1

FINISH	QUALIFY	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	TIRES	BODY
1	1	Peter Robinson	414M	Fantom	Trinity	LRP	KO Propo	Tamiya B2	Ferrari 360
2	4	Ling Tong	414M2	Reedy	Reedy	LRP	Hitec	Tamiya B2	Ferrari 360
3	2	Michael Rydwell	414M2	Reedy	Trinity	LRP	Airtronics	Tamiya B2	Ferrari 360

GT2

1	1	Joven Madriaga	TA04R	Handout	Team Orion	Keyence	Airtronics	Tamiya B2	Corvette C5-R
2	2	Sam Hudson	TA04R	Handout	Trinity	Keyence	Airtronics	Tamiya B2	Toyota MR2
3	5	Matt Pozel	TA04R	Handout	Trinity	Novak	Futaba	Tamiya B2	Ferrari 360

F1

1	1	Tom Hibler	F103	Kit stock	Peak	LRP	Hitec	Tamiya Type-B	Lotus
2	3	Rodney Canare	F103	Kit stock	Peak	LRP	Futaba	Tamiya Type-B	Lotus
3	4	Tom Kahl	F103	Kit stock	Peak	Novak	Futaba	Tamiya Type-B	Lotus

Mini

1	1	Dan Garber	M04L	Kit stock	Whip	Novak	Futaba	Tamiya Type-B	S-2000
2	3	Jesse Shapiro	M04L	Kit stock	Team Orion	LRP	Airtronics	Tamiya Type-A	BMW Z3
3	4	Craig Richter	M03	Kit stock	Team Orion	LRP	KO Propo	Tamiya Type-A	Cooper

F201 Exhibition

1	1	David Jun	F201	Handout	Reedy	Novak	Futaba	Pit Shimuzu	Ferrari
2	3	Jimmy Jacobsen	F201	Handout	Reedy	Novak	Airtronics	Pit Shimuzu	Ferrari
3	2	Rick Hohwart	F201	Handout	Peak	Novak	Futaba	Pit Shimuzu	Ferrari

PRODUCT REVIEW

JR Racing XS3

Synthesized FM Computer Radio System

by Peter Vieira

Since RC's earliest days, the frequencies of the signals we transmit have been determined by crystals—those fragile metal pills we plug into our radios and receivers. For racers, that has meant keeping at least two extra crystal sets ready to resolve frequency conflicts at the track. Even if you aren't a racer, chances are you've had to buy at least one extra set of crystals to avoid being on the same channel as another guy at the local hot spot or to replace a set of crystals that went bad.

Well, you can forget all that. Crystal-free technology has arrived, and JR Racing is the first to offer a radio system with a crystal-free transmitter and receiver that have been designed and manufactured in-house to work together. They're part of the new XS3 package, and we've got all the test data you're looking for.

Channel surfer



What does this button do?

The XS3 has a thumb switch (grip button "C") that can be used for three functions, depending on your needs:

- **EMERGENCY STEERING.** If you select this mode, activating the switch will override the dual-rate steering setting to give you full steering throw. This is useful if you've dialed out much of your car's steering but find you need to make a U-turn to get out of a crash. If you can get back into the race without waiting for a marshal, you'll have a real advantage.

- **LAP TIMER.** The XS3 uses an "up timer," which means it starts at zero and counts up. Once the lap timer has been activated, each consecutive press of grip button "C" records a lap. Up to 50 laps can be stored, and you can scroll through them on the LCD screen.

- **GEAR-SHIFT TOGGLE.** This mode is for those who drive third-channel-reverse trucks. It activates the third servo, and each button click sends the servo to the end of its travel range (as set by you with the endpoint function).

More on that third channel ...

Grip button "C" can't be used for proportional third-channel control, but that doesn't mean the XS3 lacks this capability. If you assign grip lever "A" to the third channel, it will operate the third servo proportionally when you click the switch in the direction you want the servo to go. This is perfect for making onboard fuel/air mixture adjustments in nitro vehicles (not done much in cars, but it's common in boats), or you could use it to make a wing servo-adjustable or operate "special-effects" functions. How about a rotating turret on your touring car?

Don't forget the servos

Along with the RS300 75MHz receiver, a 4-cell, AA battery holder and a switch harness, the XS3 includes a pair of servos that are a good match for any type of 1/10-scale competition.

- **Z270 STANDARD RACE SERVO.** This is your basic servo; it has a plastic gear train and about 40 oz.-in. of torque. This servo is best for the throttle or shifting mechanism if you drive a nitro car.
- **Z590M TORQUE RACE METAL-GEAR SERVO.** Here's your steering servo; with 85 oz.-in. of torque and a 0.15-second transit time, it has the juice to keep your nitro and electric trucks and touring cars pointed in the right direction.



Changing channels



Shown actual size

a few buttons, twist a couple of dials, and get out there; that's the real advantage of JR's crystal-free XS3. Well, that and its huge cost savings! With a suggested "street price" of \$199 (transmitter and receiver only), the XS3 costs far less than what you would spend to buy a similarly equipped radio set and all the crystals required to match its synthesizing capabilities.

In our February issue, we gave the XR3i high marks for its ergonomics and easy-to-use functions; the XS3 feels the same and operates in exactly the same way. The adjustable wheel tension is a welcome feature (I like mine really stiff), and the Direct Trim feature is a plus; with each click of a trim switch, the LCD screen automatically displays the function's setting.

Of course, the most important item to test was the XS3's frequency-synthesizing system. Instead of having rotary dials on the transmitter, the frequency is selected using the LCD screen. The "increase" and "decrease" buttons are used to punch in the frequency, and then the receiver is set to match. (You'll need a flat screwdriver with a 2mm tip to set the receiver dials.) Once you've matched the frequencies, the system is ready for you to switch it on and drive.

You'll never notice or think about the frequency-synthesizing gear while you're driving, but you'll love it when there's a frequency conflict in your Main—that will be some other guy's problem. Likewise, you won't have to waste valuable practice time hanging out at the frequency board waiting for the guy who is hogging your frequency. Punch

valuable practice time hanging out at the frequency board waiting for the guy who is hogging your frequency. Punch

XS3 FEATURES

The XS3 has the same primary features and case as the XR3i, which are explained in detail in February's "Product Probe" XR3i review. (No back issue? Check it out online at rccaraction.com.) Model memory has been upped for the XS3, though; it can store settings for six models, while the XR3i stores four.

- Steering, throttle and third-channel endpoints
- Six-model memory with three-character model-naming capability
- Adjustable throttle deadband
- Steering, throttle and brake exponential
- Steering/throttle mixing
- Steering, throttle and third-channel subtrim
- Steering dual rate
- Direct trim
- LCD display
- User-assignable grip levers
- Adjustable wheel tension
- Low-voltage alarm



NORMAL AND FAST FRAME RATES

Variable frame rate is the latest in RC radio technology, and it's designed to exploit the superior speed of digital servos. With the fast frame-rate setting, digital servos can respond more quickly to commands. JR recommends that you use the fast frame rate only if your car has at least one digital servo. If you use analog servos, the fast frame rate offers no advantage, so select the normal frame-rate setting.

So ... does it work? The answer is "Yes." When using digital servos, there is a difference in responses obtained with the normal and fast frame-rate settings. It isn't a dramatic difference, though; you may not feel it if you race off-road or in other situations in which the cars have breakable traction. But in situations where every millisecond counts (such as high-traction carpet racing—especially 1/12 scale), you'll be able to feel increased quickness and precision in your steering inputs.

Understand modified motors

by Lito Reyes

The ABCs of speed

Modified motors are often regarded as objects of mystery by those who don't "speak RC."

They all look pretty much the same, yet prices and performances vary widely. And what the heck are winds, turns and timing? Don't feel bad if that sounds like you; we have all the answers you'll need (and for you more experienced guys, here's a chance to make sure that all the stuff you've been talking about at the hobby shop is actually true!). Get ready to join the mod squad.

MOTOR ANATOMY

First things first: what are all the parts called? Here's what you'll need to know to "talk motor."

ARMATURE. This is the part of the motor that actually spins and is most responsible for the motor's performance. The armature is constructed of steel laminations that are "Y"-shaped when viewed in cross-section. The laminations are often referred to as the "armature stack," since they are stacked together. The three "arms" of the Y are the armature's poles, and wire is wound around these poles (this is where the term

"winds" comes from; we'll get to that). The wires terminate at the commutator—the copper-colored cylinder at the top of the armature. The commutator and armature stack are attached to the motor shaft, which extends out of the motor can so you can install a pinion.



This end view of the armature shows what it looks like before wire is wrapped around the poles.



The armature is a critical element of motor performance. The gauge and length of wire (number of turns) wrapped around each pole determine power output. The armature on the right has three strands of wire wrapped around each pole 10 times, and this makes it a 10-turn triple wind (or a "10x3").

Almost every component of the motor is installed in or attached to the motor can. Modified motors tend to have fewer vents than stock-class racing motors because a mod motor benefits more from the resulting stronger magnetic field.



MOTOR CAN AND MAGNETS.

The motor can is the motor's foundation. It's the part of the motor that's attached to the car, and it's home to all of the motor's other components.

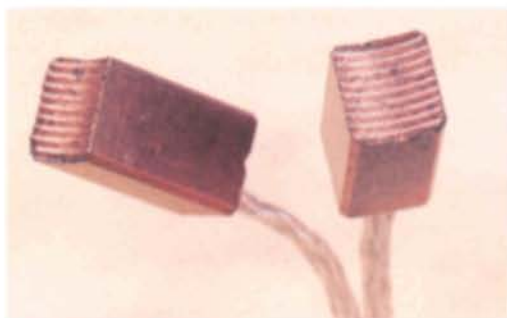
Inside the can is a pair of magnets, which you may have heard described as "wet." This refers to their manufacturing process, in which magnetic material is molded and compressed into shape while suspended in fluid. Wet-pressed magnets are

stronger than standard magnets; they give the motor more punch and overall power. All modern RC motors are equipped with wet magnets.

The bottom of the can holds one of the two bearings that supports the armature. The other bearing is in the endbell; we'll get to that—and the armature—later.



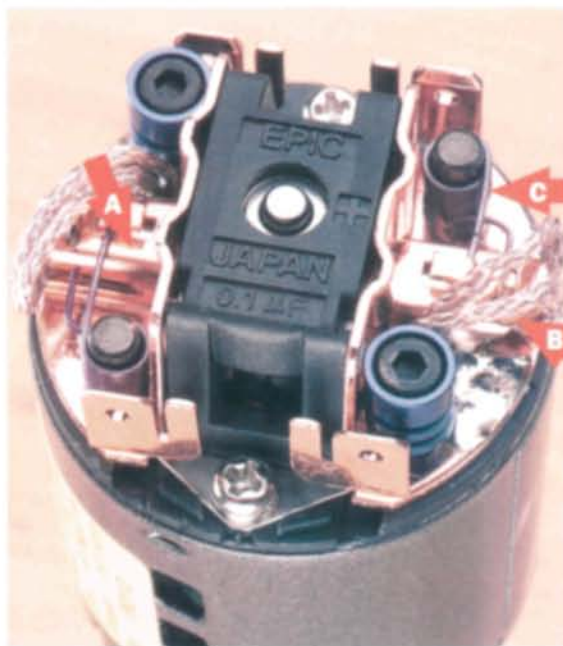
The magnets are shaped to fit inside the motor can and are usually glued into place with epoxy.



BRUSHES AND BRUSH HOODS

Motor brushes are the conduits through which power is carried from the speed controller to the motor. The brush shunt (the braided wire that protrudes from the back of the brush) is either soldered or screwed to the brush hoods; the hood is the "tunnel" that guides the brush toward the commutator.

Brushes are the conduits that get power from the speed controller to the armature. Serrated full-face brushes such as those shown here are typical in hand-wound modified motors.

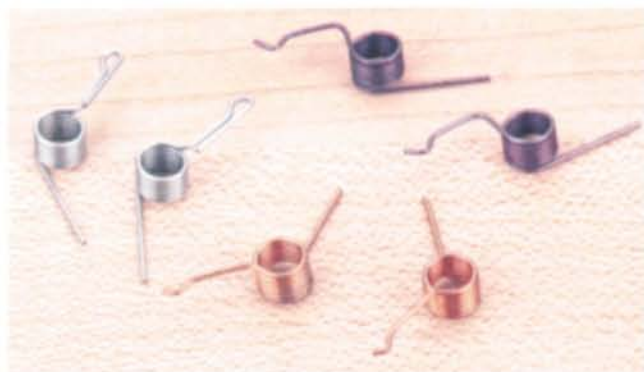


ENDBELL. The endbell is the "cap" on the back of the motor. Its basic function is to hold the bearing that supports the end of the armature shaft, but the endbell is also the location of the motor's critical "power parts"—the brushes, brush springs and spring posts.

The endbell is the motor's center of power distribution. Power travels through the motor wires and then through the brush hoods (A) and brush shunts (B), into the brushes and across to the commutator. Springs (C) press the brushes against the commutator.

BRUSH SPRINGS AND SPRING POSTS. Springs are used to press the brushes against the commutator. The springs fit over posts that are screwed into the endbell, next to the brush hoods. The springs are available in various tensions, and this variety enables you to tune the motor by adjusting how hard the brushes press against the commutator. It's a technique worth exploring for experienced motor tuners, but most racers needn't worry about fiddling with brush tension. For play, it isn't worth worrying about.

Brush springs come in all shapes and sizes, but most spring designs can be used on any motor with only a few exceptions. The springs press the brushes against the commutator.



Hand-wound vs. machine-wound

Some things are still best done by hand rather than by machine, and winding an armature is one of them. Efficiently wrapping a piece of wire around an oddly shaped armature isn't easy for a machine, and a professional motor builder can create a tighter, more consistent wind that uses less wire. In addition, hand-wound

motors receive additional attention to detail as they are assembled; each is essentially hand-built from the ground up. This can result in as much as a 44-percent increase in power compared with a machine-wound motor that has the same number of winds and turns.

Machine-wound motors, however, offer a very economical alternative to hand-wound modifieds. Machine-wound motors often cost half as much as hand-wounds, and though they do give up a bit of performance, machine-wound motors clearly give the best bang for the buck. You can usually get two machine-wound motors for the cost of a single hand-wound. For play and anything short of the most serious racing, a machine-wound motor is all you need.



A hand-wound armature is still more desirable than a machine-wound because the windings are stacked more neatly and more consistently by hand. The motor on the left is machine-wound, while the center and right armatures have been wound by hand. Hand-winding an armature also increases balance and efficiency.

Turns and winds

Motors are typically referred to as having a certain number of turns or winds. It isn't uncommon to hear, "I'm running a 10-turn" at the racetrack or shop. "Turns" and "winds" are terms that describe how much wire is wrapped around the poles of the armature.

TURNES. A 10-turn motor, for example, has 10 loops of wire wrapped around each pole of the armature. An 11-turn has wire wrapped around each pole 11 times, and so on.

WINDS. If a 10-turn motor has 10 loops of wire wrapped around each pole of the armature, then what is a "10-double"? "Double" refers to the number of strands wrapped around the armature; in this case, two strands. So a 10-double has two strands of wire wrapped around the armature 10 times. Multiple strands are often used simply as a way to get more wire on the pole than is possible using a single strand of thicker wire. Two wires that equal the thickness of a single wire are easier to wrap neatly around the pole.

A motor with fewer turns generates higher rpm; if you want to go faster, you typically install a motor with fewer turns. Low-turn modifieds don't produce as much torque, however, so the car must run an "easier" gear ratio (using a larger spur gear or a smaller pinion) to take advantage of the greater rpm. You must also make certain that your car's transmission and electronic speed control can handle a strong modified motor. If you install a motor that's too powerful for your equipment, you may damage the car, the speed control and even the battery pack. Check your ESC's instructions to see the minimum number of turns it is rated for; most can handle down to 17-turn motors—also mild enough for any transmission to handle. You'll maintain decent run time, too; remember, the faster you go, the more quickly your battery will be drained.



These two armatures are both 10-turn models, but the one on the left is a 10-double, or "10x2," and the one on the right (marked "10 TRP") is a 10-triple, or a "10x3."

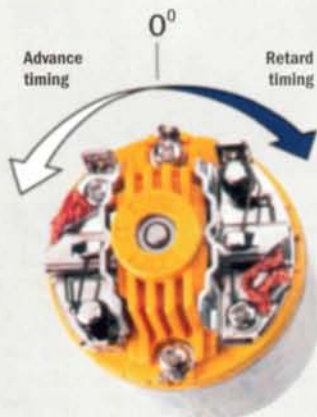
MOTOR RECOMMENDATION CHART

Vehicle type	Suggested no. of turns
Competition touring cars	12 or fewer
Entry-level touring cars	13 to 19
2WD competition buggy	10 to 19
2WD sport buggy	15 to 21
2WD competition stadium truck	10 to 16
2WD sport stadium truck	15 to 21
4WD competition buggy	12 or fewer
4WD sport buggy	13 to 19 turns
4WD stadium truck	15 to 19
4WD monster truck	16 to 21; 540 or 550 motors

Note: upgrading to a significantly hotter modified motor may also require an upgraded speed control. Check the instructions included with your speed control or vehicle to determine the limits of the speed control you're currently using.

Understanding timing

Motor timing refers to the position of the brushes in relation to the center of the magnet (or the center of the magnetic field, if you want to get technical). Timing is adjustable on most mod motors. The "zero-degree" setting means that the brushes are centered over the magnets. If you rotate the endbell counterclockwise (away from the zero setting), you are "advancing" the timing; if you rotate the endbell clockwise (away from zero with the rotation of the motor), you are "retarding" the timing. Fifteen to 25 degrees of advanced timing covers the ideal setting range of the vast majority of all motors. As you look down on the endbell, you advance its timing by turning it counterclockwise. Each millimeter you rotate the timing mark on the endbell equals about 3 degrees of timing.



Properly adjusting the advanced timing on a motor can increase power, but more isn't always better. A scale on most motors gives a visual reference for adjusting timing. Rotating the endbell counterclockwise advances timing.



WHAT'S NEXT?

There's more to learn if you want to reach motor-master status: brush compounds, spring tensions, armature configuration, etc. There are many ways to tune a mod motor for maximum performance, and there are as many opinions about which tuning methods are best. Experience is the best teacher of advanced motor-tuning techniques, but the most valuable knowledge is the core info you've learned here. Compared with those who don't have this issue of Car Action, you're now a motor expert! ■

Build a better brake

5 tips for top stoppers

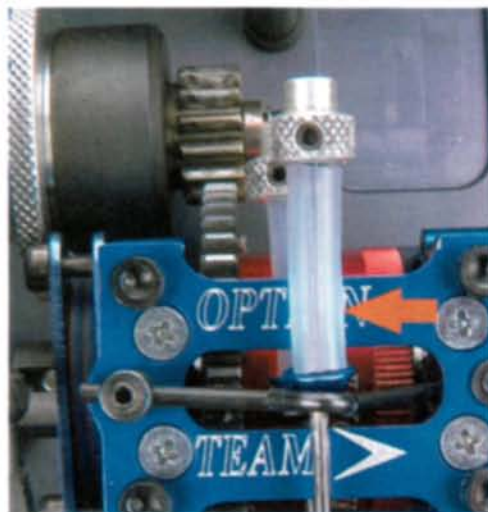
by George M. Gonzalez

Almost all nitro-powered RC vehicles have some kind of cam-actuated disc-brake system that is reliable, adjustable and easy to maintain. RTR vehicles are built well at the factory, and most RC kits provide adequate instructions for proper brake assembly, but with a little extra effort when you set up your brakes, you'll shave seconds off your lap times. Here are the tips you need to build, adjust and maintain your disc-brake system like a pro.

Scuff the rotors

If your vehicle has a fiber or composite brake rotor and steel calipers, you can improve braking by lightly sanding the rotor's surface. Put a sheet of fine-grit sandpaper on your workbench, and then, with a circular motion, lightly rub the rotor over it to remove the high points and roughen it slightly.

For more grip, sand the brake-rotor using a circular motion and a consistent pressure. Re-sand the rotor whenever you see surface "glazing."



Replace the brake spring with fuel tubing

For even smoother and more linear braking, replace the spring that tensions the brake lever with a piece of fuel tubing of the same length; slide the tubing over the brake linkage. To prevent the tubing from getting stuck inside the brake-lever eyelet when the brakes are applied, slide a washer or a pivot ball over the brake linkage between the fuel tubing and the brake-lever eyelet.

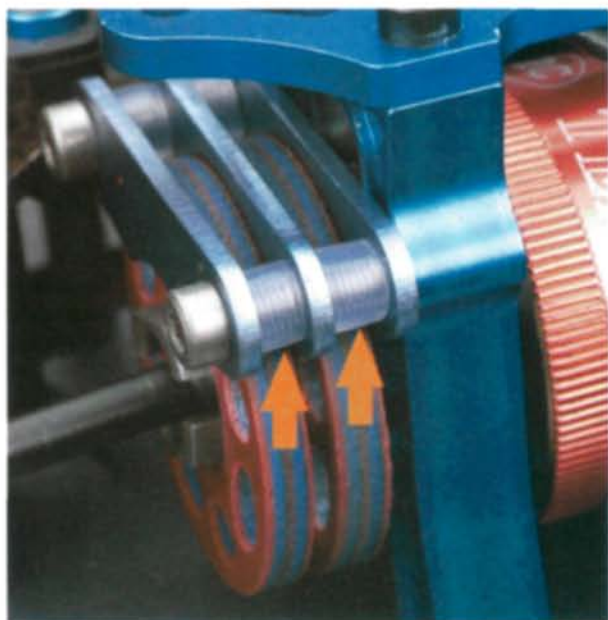
Replace the brake-lever tension spring with a piece of fuel tubing to give the brake system a more progressive feel and greater power.



Glue the brake pads

If your brakes have metal rotors, the calipers probably have fiber, rubber or cork brake pads (linings). If these pads are not already securely laminated to the calipers, you must glue them to the calipers; most instructions suggest that you use with CA for this, but CA does not hold them for long. Instead, use a flexible adhesive such as DuraTrax's Shoe-Goo or Pacer's Zap-A-Dap-A-Goo. Put a dab of glue on your finger and then smooth it evenly over the brake pads. Press the brake pads firmly against the calipers, and wipe off any excess glue that is squeezed out. Install the mounting screws through the holes in the pads and calipers to ensure that the pieces bond correctly, and then allow the glue to dry for 24 hours. When you reinstall your brakes, you should find that they're more reliable and consistent than they were before.

Spread just enough adhesive to cover the pads, and wipe away any excess.



Install tension springs or O-rings

If your brake rotor rubs against the calipers when you're accelerating or coasting, you're wearing out your brakes, and your braking will be inconsistent. To solve this problem, you could simply loosen the mounting screws that secure the calipers on the transmission or brake-cam housing, but you will lose valuable braking power in the process.

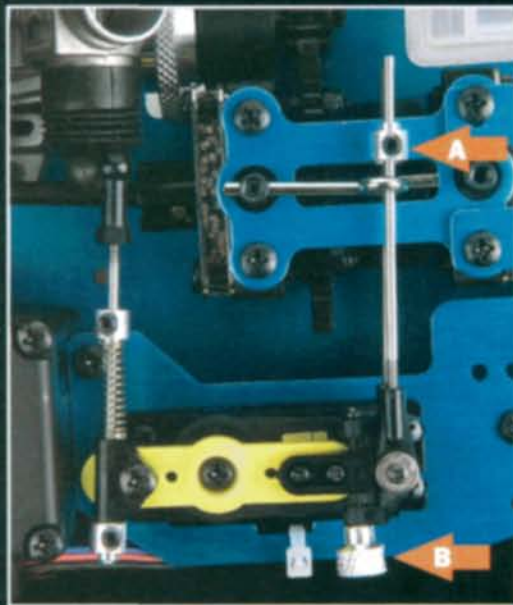
The best solution is to install small springs or O-rings between the calipers to push them apart when you release the brakes. You'll find small springs at most hardware and hobby shops, but the small, low-tension springs inside retractable ballpoint pens work best. The O-rings used in RC shocks also work great; to work properly, they should be slightly wider than the brake rotor. Install the springs or O-rings between the calipers and use the tension-adjustment screws to keep them in place.

Install small springs or O-rings (or segments of fuel tubing) between the brake calipers to prevent them from rubbing on or sticking to the brake rotor. You'll extend the life of the components and have smoother, more consistent braking.

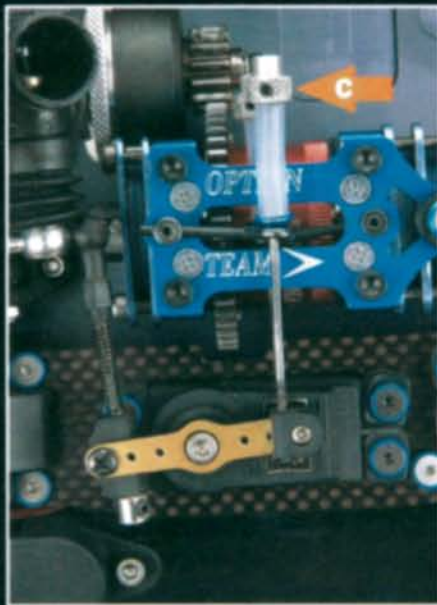
Setting brake bias

Most $\frac{1}{8}$ -scale 4WD buggies have separate front and rear disc brakes that allow brake bias to be adjusted. This feature allows you to set the force of the front and rear brakes independently. Since weight is transferred to the front of the car when you apply the brakes, they're typically set so that the front wheels are given more braking force than the rear wheels; in other words, the brakes are biased toward the front wheels—hence the term "brake bias." Setting brake bias correctly is a matter of trial and error, but it isn't hard to figure out what to do: just reduce the braking force on the wheels that lock up first under maximum braking.

To adjust the bias, reposition the linkage stops that put pressure on the front and rear brake levers; many buggies make the job easier by having thumbwheels on threaded brake rods. Some also have front and rear brake linkages joined on a yoke that can be adjusted using its own thumbwheel; this allows you to adjust total braking force without altering the bias settings.



This brake setup uses screw collars (A) to adjust braking force; by moving the collar closer to the brake arm, the brake will have more squeeze power. The front and rear brake linkages can be set independently. Once the screw collars are set where you want them, the thumbwheel (B) can be used to adjust the front and rear braking force simultaneously without disturbing the bias adjustment.



This setup uses a thumbwheel on each linkage (C) to adjust brake bias. To increase total braking force without disturbing the bias setting, both thumbwheels must be adjusted in equal amounts.

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PACER TECHNOLOGY (800) 538-3091;
pacertechnology.com.

DURATRAX distributed by Great Planes
(800) 682-8948; duratrax.com.

Trick trucks from Tamiya

The National Radio Control Truck Pulling Association (NRCTPA) Worlds is one of the country's premier annual monster truck events. It draws more than 300 competitors from around the U.S. and is dominated by Tamiya's classic Clod Buster and its TXT-1. Tamiya has noticed the popularity of its trucks at this event. In 2001, Gary Demory of Tamiya America attended; he competed in the Stock class with a TXT-1. In 2002, Tamiya sent Gary and its own truck guy, Joe Anderson, to join the NRCTPA guys. The two Tamiya reps each built a couple of sweet factory rides to compete. I nabbed them afterward so that I'd be able to give you a closer look.



Pro-Line's classic Giant Trac tires provide this TXT-1 with gobs of traction. They are mounted on stock TXT-1 wheels.



Gary replaced the stock plastic servo mounts with aluminum parts from Tamiya. The more rigid material flexes less, and the increased rigidity enhances steering.



The chassis is supported by four of Tamiya's threaded aluminum shocks; the blue-anodized units look much nicer than the stock ones, and they operate more smoothly, too.



GARY'S TXT-1

Gary's TXT-1 is relatively tame compared with some of the TXT-1s out there; he uses Tamiya factory hop-ups to enhance the truck's performance and looks.

Parts

TAMIYA

- Lightweight chassis—53520; \$125.99
- Ball bearings
 - 5x8 (3)—53030; \$22.79
 - 5x11 (8)—53029; \$10.59
 - 6x12 (16)—53065; \$10.59
- Aluminum servo mounts—53493; \$39.99
- Super Stock Type S motor (2)—49247; \$38 each
- Blue-anodized
 - axle guards—53493; \$39.99
 - dampers—53492; \$36.99
 - cantilevers—53490; \$39.99

NOVAK

- Super Rooster ESC (2)—1860; \$119.99 each

FUTABA

- Steering servo—S9402; \$99.99

TRINITY

- RC 1700, 6-cell Sport Pack—RC1778; \$29.99

PRO-LINE

- Giant Trac tires—1056-00; \$29/pair

GARY'S CLOD BUSTER

Gary let his imagination run wild on this monster! He combined a Tamiya TXT-1 chassis with a set of Clod Buster gearboxes. Maybe, if we're lucky, Tamiya will release a kit similar to this and call it the "Clod Buster Type R" or something like that. Tamiya, are you listening?



Thunder Tech's Clod Buster servo mount is installed on the front gearbox. Gary drilled a hole to provide clearance for the cantilever links.



Gary mounted the battery pack on the bottom of the chassis to keep the truck's CG as low as it can be.

Parts

TAMIYA

- Lightweight chassis—53520; \$125.99
- Blue-anodized cantilevers—53490; \$39.99
- Super Stock Type S motor (2)—49247; \$38 each
- Ball bearings
 - 5x8 (4)—53030; \$22.79
 - 6x12 (16)—53065; \$10.59

NOVAK

- Cyclone C2 ESC (2)—1775; \$139.99 each

FUTABA

- Steering servo—S9402; \$99.99

TRINITY

- RC 1700, 6-cell Sport Pack—RC1778; \$29.99

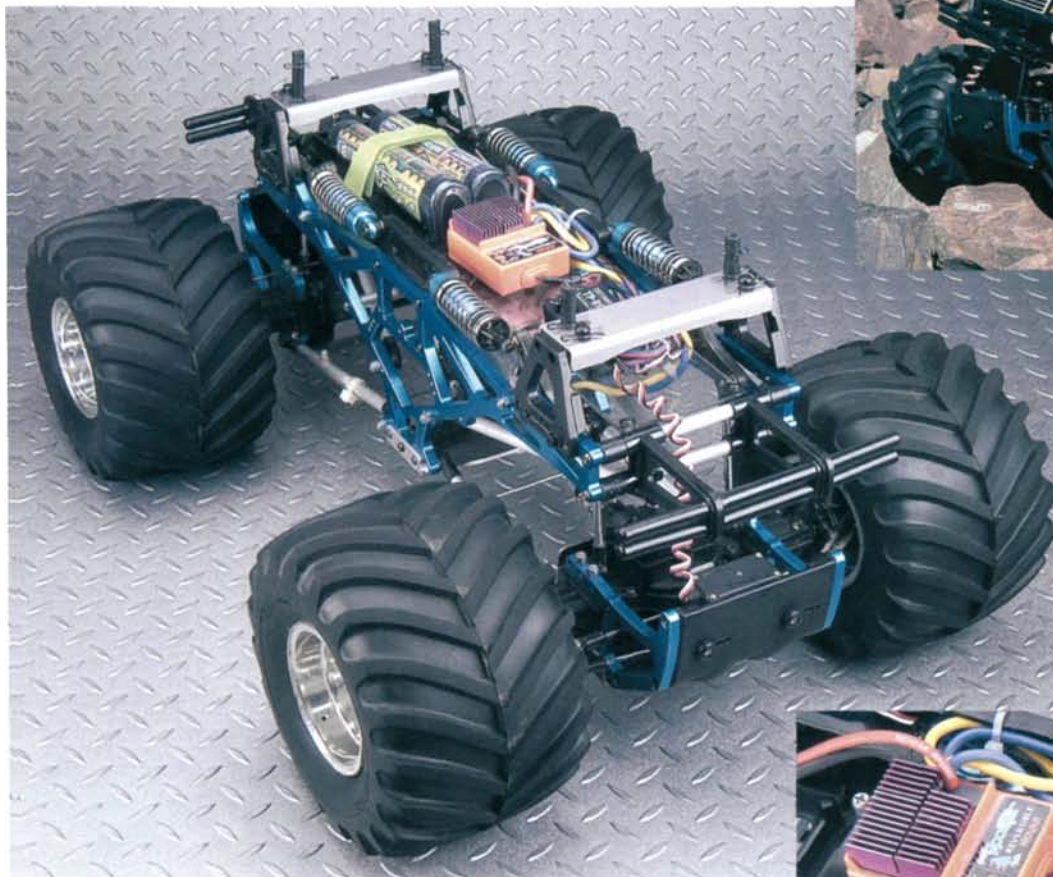
THUNDER TECH RACING

- Clod Buster servo mount—ALU-CB04; \$40



One ESC would probably have been sufficient, but Gary played it safe and used two. The Novak Cyclones deliver equal power to the front and rear motors.





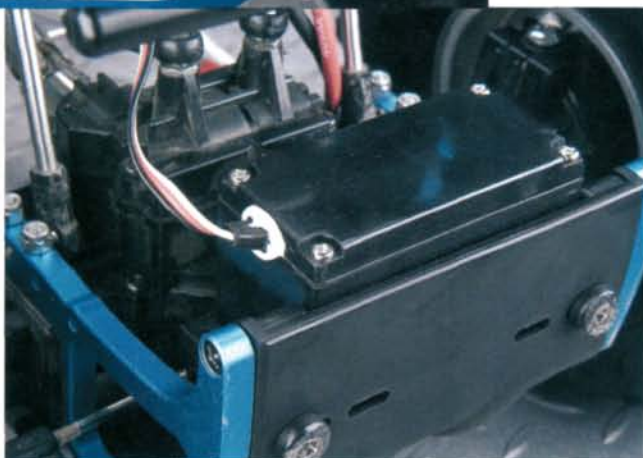
JOE'S TXT-1

Like Gary, Joe swapped the stock TXT-1 chassis for Tamiya's optional light-frame chassis. The many suspension-mounting positions allow him to tweak the truck's damping to his liking. Joe gave the clear body that came with the truck his own paint scheme.

To save weight, Joe used a piece of scrap Lexan to mount his receiver and ESC. Aluminum braces add extra support to the body mounts.



Joe had these vintage Tamiya aluminum shocks lying around, so he mounted them on his truck. They might be old, but they still work.



A big 1/4-scale servo keeps the rear wheels in check. Just like Gary, Joe uses aluminum servo mounts for better steering response.

Parts

TAMIYA

- Lightweight chassis—53520; \$125.99
- Ball bearings
 - 5x8 (3)—53030; \$22.79
 - 5x11 (8)—53029; \$10.59
 - 6x12 (16)—53065; \$10.59
- Aluminum servo mounts—53493; \$39.99
- Blue-anodized
 - axle guards—53493; \$39.99
 - dampers—53492; \$36.99

NOVAK

- Super Rooster ESC (2)—1860; \$119.99 each

FUTABA

- Front steering servo—S9402; \$99.99
- 1/4-scale, rear steering servo—S5301; \$94.99

PEAK PERFORMANCE

- Power Max 2400mAh, 6-cell pack—PEK4110; \$39.99



JOE'S CLOD BUSTER

Joe mated two Clod gearboxes with a Thunder Tech Racing Centurion chassis and topped off his creation with a Tamiya Ford Lightning body from a TL-01 sedan. I especially like Joe's custom-painted white-to-white fade.



The Novak Super Rooster ESC has been popular with monster truck owners for years. This one sits on a light, graphite mount and is more than capable of handling the two 12-turn motors.

Two Trinity Retro Series motors give this big truck all kinds of go power. They really got it up to speed in a hurry at the NRCTPA Nats.



Front and rear cantilevers give a lot of suspension travel, and the adjustable turnbuckles let Joe make quick height adjustments. The multiple mounting holes allow the suspension travel to be fine-tuned.

Parts

TAMIYA

- Ball bearings
—5x8 (4)—53030; \$22.79
—6x12 (16)—53065; \$10.59
- Ford Lightning body—98700; \$25

THUNDER TECH RACING

- Centurion chassis kit—CENT-01; \$499.95

TRINITY

- Retro Series Pure Gold 12-turn motors
(2)—9236, \$34.99 each

NOVAK

- Super Rooster ESC—1860; \$119.99

FUTABA

- Steering servo—S9402; \$99.99

PEAK PERFORMANCE

- RC 2400, 6-cell Club Sport Pack—PEK9410; \$39.99



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THUNDER TECH RACING (815) 467-0621; thundertechnracing.com.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

7 steps to a killer clutch

A clutch-system malfunction is one of the more common reasons for a nitro vehicle to break down. Unless properly maintained, the flywheel and clutch nut may loosen, clutch shoes might break or melt, and clutch-bell bearings may seize. The good news is that with a little maintenance, you can easily avoid some of the most common clutch-related problems. Here's what to do:



1 Remove the engine from your vehicle; to do this properly, follow the instructions supplied. You'll have to loosen the engine-mounting screws and disconnect the throttle linkage and the fuel tubing and remove the exhaust.

Remove the clutch bell and clutch shoes by loosening the screw or removing the clip that holds the clutch bell on the engine. Underneath the clutch bell, there are clutch shoes; pull them off their pins using your fingers or a flat-head screwdriver and set them aside. Circular 2-shoe clutches may be pried directly off their pins, but to remove 3- and 4-shoe clutches, you must carefully pry the springs off the crankshaft clutch nut. Note how the springs are "loaded"; it's important for reassembly.



Above: here's what you'll find under the clutch bell. Pay close attention to how many shims there are and where they are so that you'll be able to reassemble the clutch properly. Below: if your clutch uses a wraparound spring, you should be able to slide the shoes off with your fingers. Shoes with mousetrap-style springs usually have to be pried up with a screwdriver; be careful not to mar the shoes in the process.



3 Scuff the clutch shoes and clutch bell with a Scotch-Brite pad. If you've run a gallon of fuel or more through your nitro vehicle, the clutch shoes may be glazed and worn. A new clutch shoe looks dull (almost like a pencil eraser), but a used clutch shoe will have developed a glaze on the surface that contacts the clutch bell. This slick, shiny coating causes the clutch shoes to slip and overheat, and the result is excessive wear. If you ignore this long enough, the shoes and maybe even the bearings will eventually fail. Remove the glaze by scuffing the clutch shoes and clutch bell with a Scotch-Brite pad. Scuff the clutch shoes lightly until you've removed the glaze. Rub a piece of Scotch-Brite pad around the inside of the clutch bell to remove any glaze or any other buildup there as well. Wipe the parts with a clean, dry rag or spray them with nitro spray cleaner or compressed air.



It's easy to see the glaze buildup on the clutch shoe shown in the larger photo above; this slippery coating prevents the clutch from engaging quickly, and that leads to more glazing—the classic vicious circle. After a little scrubbing, the clutch shoe will work as well as it did when new.

4

Inspect, clean and/or replace the clutch bearings. The clutch bell spins on ball bearings or a plastic/metal needle bearing. Over time, the bearings' lubricants dry up or burn off because of heat. Eventually, the bearings will seize. With the clutch bell removed from the engine, pull the ball bearings or needle bearing out of the clutch bell. Give the bearings a shot of nitro cleaner; then reinstall them on the crankshaft. If the bearings feel gritty when you spin them, replace them before they seize completely. If the bearings still work smoothly, relube them with a drop of bearing oil and reinstall them.

Tighten the clutch nut. Grasp the flywheel using a pair of pliers or a flywheel wrench. (OFNA and Bruckner sell excellent wrenches that won't scar the flywheel.) Tighten the clutch nut securely with a nut driver or a socket of the correct size. Don't tear a bicep tightening the clutch nut, but make sure it's securely fastened so that your flywheel can't spin off during a bashing session.

Before reassembling the clutch parts, spray them with a high-quality nitro cleaner (this is Trinity's Nitro Wash). Oil is the enemy!



Reassemble the clutch in the reverse order from which you disassembled it, after you've given the parts one last wipe-down. Any traces of oil or grease may cause the clutch to slip or even to melt when it's subjected to heavy loads.

Be sure to install the shoes facing the same direction as they were before you removed them. Also, if you have a 3- or 4-shoe spring clutch, be sure to "load" the spring. Put a drop of thread-locker on the clutch-bell screw, and tighten it securely. Again, do not tighten it too hard; just use enough force to fasten it securely.

Reinstall the engine, and be sure to check the gear mesh before you tighten the mounting bolts. Your car is back in action!

7

You'll need a deep socket that will fit over the pilot shaft and grab the clutch nut, and you'll need a tool to hold the flywheel as you tighten. A pair of slip-joint pliers may fit around the flywheel, but a special flywheel holder is the best tool for this. This one from OFNA grabs the flywheel's clutch pins to avoid scarring its edge.



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BRUCKNER HOBBIES
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Big body small details

A certain excitement comes along with a new RC body—the potential that lies “beneath” all of that clear Lexan! If you’re like me, you can’t wait to get started as you imagine what they’ll say at the track when they see your latest and greatest. It’s so easy to get wrapped up in thinking about the result that we’re tempted to skip the planning and prep in the rush to get painting, but these are critical steps. The penalties for taking shortcuts can range from minor paint bleeds and little boo-boos to the ultimate sin—an ugly body. By skipping the little details, you’ll also miss the chance to create something unique. This month, I tackle a 1/5-scale MCD truck body from Brooklyn Hobbies; nothing reminds us how important the basics are as much as dealing with large-scale Lexan. Even if you never paint anything larger than a Micro RS4, remember the five “Ps”: proper prep precedes perfect paint.



Think outside the box

Unlike a body of a more conventional size that you can easily hold and turn with one hand while painting it with the other, it’s impossible to wrestle with an airbrush or a spray can when you’re holding a big body such as the one shown here. A factory-trimmed body can’t be set down upright without potentially scratching the inside. An easy solution is to use a cardboard box as a car stand; it will support the body from any angle you need to work at.



Step 1. Choose a box that when placed on its side will be stable enough to rest the body on. This makes drawing your scheme easier because you can turn the box around on the workbench as you need to.



Step 2. Before the paint flies, make certain that you’ve figured out a way to “cradle” the body in any position that you’ll need it to be in. Make simple, angled cutouts on the sides of the box to allow you to mask and paint the body from a comfortable angle. A makeshift brace will keep the body stable.

Step 3. A typical 1/5-scale body costs about \$100, and you can’t just run to the local hobby shop to pick up a replacement if you goof up, so it’s important to make sure that you don’t scrimp on the prep and planning. First, make sure that the body is free of mold-release agents and oil. I tossed the truck into the shower and gave it a good cleaning with dish soap and water.

Now that we’ve eliminated the chance of mistakes caused by poor prep, the most important step is to plan the paint scheme. You don’t want a perfectly painted—but ugly—body. I decided to go with a two-tone blue-and-white scheme with a layered flame design along the sides. On the hood, there’s the traditional Dodge Ram design that you may have seen on some of the NASCAR Craftsman Supertrucks. A custom mural adorns the tailgate.



Step 4. This body didn't come with window masking, so I figured that it would be easiest to use liquid mask on the inside. I sprayed on several coats of Bob Dively liquid mask with my Iwata RG-3 gravity-feed spray gun. Large top-feeders like the RG-3 let you blast thicker liquids (such as liquid mask), but you may have to thin the mask with a little water to achieve the appropriate consistency for spraying. The white shown here is the body's protective overspray film.

Step 5. The flames started with a hand-drawn pattern and are actually three layers of paint. I laid out the basic pattern and cut into the liquid masking, then I removed the inner layer and sprayed the perimeter with Parma's FasFluorescent orange. I did the middle layer in the same way, and I left the outer portion unmasked for last. You can fill the entire flame area with any contrasting color; I used Parma's Fasescent Yellow on the MCD truck. I backed the flames with white, and while the paint was still in the gun, I sprayed the top of the truck as well. When the paint had dried, I backed the white areas with silver to ensure that paint wouldn't bleed when I applied subsequent colors. I gave the flames a tight border of black before I completed the Faspearl blue portion; this detail adds depth to the flames and helps the colors pop out.



The techniques that I used to create the 1/5-scale Ram's paint job aren't overly difficult, but you'll stack the odds against yourself if you don't take time to plan. Planning and prep work are worth it because that's when you'll think of other details to add, and you'll avoid the cost and annoyance of a do-over. Try to anticipate the challenges that you could face when you paint, and—big or small—go paint something!



The gang at Brooklyn Hobbies distributes the MCD truck, so I thought it would be fitting if I worked the name into the paint job. Before I sprayed on the blue paint, I cut out a random pattern in the masking on the tailgate and left an area masked for my mural.

1. I printed the Brooklyn Hobbies logo on plain paper to use as my template for the lettering. I went to the Internet to find an image of the Brooklyn Bridge for my tailgate mural. Detail wasn't important because I needed only its silhouette.

2. I shrank the printout using the "reduce" feature on the copier and transferred (traced) the bridge's outline to the vinyl.

INTRO-MURAL ACTIVITIES

Translucent vinyl masking makes it easy to see the graphics when I cut. Here's where a ruler and patience pay off.

3. My idea was to paint a soft, twilight image of the bridge and position the lettering in the foreground. I hit the edges of the cutout with a silver marking pen to highlight the mural's border.

4. To create the twilight backdrop, I applied a white halo followed by blue and, finally, a little black.

5. I sprayed a silver backing to avoid paint bleed-through. I pulled away the bridge mask and applied black paint.

6. I painted the lower portion of the lettering with orange and sprayed the tops of the letters with white. Little touches (such as the two-tone lettering) go a long way toward enhancing this body's "look."

The finished look combines several simple design elements to add wonderful details to the paint job. It's one of those "It looks tougher than it really is" techniques.



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New in the shop

TAMIYA

Self-adhesive graphics

Add zip to that basic paint job with these new, stretchy, vinyl graphics from Tamiya. The brightly colored 8x14-inch sheets of graphics will help you dress up an otherwise boring body. I'm partial to the flame look, but the checker-flag-type is cool, too.

Flags—item no. 53550; \$8.99/sheet.

Flame—53551; \$8.99/sheet.



AZTEK

Heavy metal airbrush kit

With its new dual-action, internal-mix A470M airbrush, Aztek has released what is probably the most complete airbrush setup on the market. Inside the beautiful wooden case are nine detail nozzles, adapters for propellant can and compressor use, seven color cups and a generous, 6-foot hose. The 470M is a metal version of Aztek's plastic-body airbrush, and it certainly lives up to its "heavy" nickname; the brush's meaty 4 ounces gives it a very balanced feel. Another nice feature is the long trigger moment that makes it a lot easier to get the precise flow you need for fine, detail work and broad coverage.

Aztek A470M airbrush with case and accessories—item no. A7778; \$190.



FRESH PAINT

Bob Smith, Goodrich, MI

Dale Sweigart of Reinholds, PA, sent in this shot of his XTM X-Factor and its great-looking Pro-Line Suburban body. The paint credit for the "Hawaiian Punch" theme goes to Bob Smith of Goodrich, MI. The beautifully layered sweeps were first drawn on the outside with non-permanent markers. Bob applied Hobbico Master Mask to the inside and then cut the design out with a hobby knife and several blades. The colors' brightness comes from four coats of FasKolor and an interior backing of white. Check out more of Bob's custom work at RC4clods.com.



Do you have a sharp, uncluttered photo of your best paintwork? Send it in! Explain the types of paint, products and techniques you used to finish it. Be sure to include your full name and address and your email address if you're online. For information about sending electronic images, check out www.caraction.com. Send print or slide photographs to "Body Shop," RC Car Action, 100 East Ridge, Ridgefield, CT 06877, USA.

CONTACT THE BODY SHOP

Send your "Body Shop" questions and comments to Bob Hastings, bobh@airage.com.

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MCD distributed by Brooklyn Hobbies (718) 951-2500; brooklynhobbies.com.

PARMA/PSE (440) 237-8650; parmapse.com.

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PRIZES! PRIZES! PRIZES!

Whew! The contests have been stacking up, so it's time to blow out some prizes. Did you win?

Mike's favorite muscle car

From "Now these are Muscle Cars!," September 2002

That edition of "Back Lot" featured some hellacious hot-rods, courtesy of Team Associated's Mike Ogle, and we invited you guys out in reader-land to send in your own muscle projects for Mike's approval. As promised, Mike has chosen his favorite muscle-car, which earns its owner an Associated TC3 with a custom-painted body, courtesy of Mike and Team

Associated (we'll show you the body when Mike has finished it). Here is Mike's pick and his comments:



The Winner Kenneth Echols '64 Impala

Ken expands on the "lowrider" concept with a full set of hydraulics controlled by a 6-channel Airtronics radio. It's another one of those Pegasus Impalas with the accompanying Pegasus wire wheels. The chassis is a Tamiya FF02. Kenneth plans to give it a custom, neon license plate and a boomin' stereo system next. Good job!



SPOT THAT GOOF!

From "RC Car Action goes NASCAR," October 2002

We used the old "What's wrong with this picture?" gag in this "Back Lot." The first person to notice the three deliberate goofs in the layout won a custom-painted Protoform oval body (like this Monte Carlo). Florida's **Chris Bradenton** noticed the "RCCA" above the Winston Cup scoreboard and Kevin Hetmanski masquerading as one of Jeff Gordon's pit guys. He also caught the sponsor decals on Jeff's Monte Carlo and noticed it was the 2001 car; now there's a NASCAR fan!



THE PRIZE



ROBO-QUOTES

You guys are quick, but only one can be quickest! **Tony Knapp** was the first to email us the correct answers to our robo-theme "Who said it?" questions and win a GunWalker. Here are the answers:

Curse my metal body! I was too late! was uttered by a frantic C-3Po when he thought Luke, Han and Leia had been smooshed in a trash compactor after their escape from the detention level. "Star Wars," of course.

Your clothes. Give them to me is the first thing Arnold Schwarzenegger says in "The Terminator" (and it's also the worst pick-up line ever).

No Atomo. I Superman! pretty much sums up everything that made "Iron Giant" great. Rent this movie; it's awesome.

From "Kyosho GunWalker," March 2003

Dead or alive, you're coming with me is RoboCop's catch phrase. The bad guys usually picked "dead."

Not bad, for a human. A lot of you missed this one. The android Bishop (well, half of him anyway) said it after Ripley tossed the queen alien out of the airlock in "Aliens." ■

NEW CONTEST

Yep; there's a new contest in this "Back Lot"—and finding it is half the challenge.

